PROPOSED TRANS-SIBERIAN NATURAL GAS PIPELINE

HEARING

BEFORE THE

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

FIRST SESSION

TO DISCUSS THE WIDE RANGE OF COMPLEX AND CONTROVERSIAL ISSUES SURROUNDING THE BUILDING OF A MAJOR NATURAL GAS PIPELINE FROM NORTHERN SIBERIA TO THE HEARTLAND OF EUROPE

NOVEMBER 12, 1981

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THURSDAY, NOVEMBER 12, 1981

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, D.C.

The committee met at 11 a.m. in room 5302 of the Dirksen Senate Office Building, Senator Jake Garn (chairman of the committee) presiding.

Present: Senators Garn and Heinz.

Also present: Senator William S. Cohen.

OPENING STATEMENT OF CHAIRMAN GARN

The CHAIRMAN. Ladies and gentlemen, the hearing will come to order.

Our first witness is not here yet—the Honorable Jim Nelligan from the House of Representatives—but I will start with my opening statement while we are waiting for the Congressman to arrive.

The purpose of today's hearing is to talk about an event which could be a watershed in East-West relations. On Sunday, November 22, Leonid Brezhnev, President of the Soviet Union, will arrive in Bonn, West Germany. Current indications are that he will sign an agreement with our West German allies that would lead to the largest East-West economic venture in history.

It would:

Provide the Soviet Union with a badly needed boost in foreign exchange earnings.

Help the Soviets maintain their control over Eastern Europe.

Bail the Soviets out of serious energy and economic difficulties.

Expose Western European banks to a heightened threat of financial ruin.

Grant Moscow large-scale economic and political influence over Western European affairs that would sap the vitality out of the NATO alliance.

In return, the Western Europeans get the privilege of turning over to the Soviets billions of dollars in technology, goods, and equipment, paid for almost entirely by Western loans that are secured by as-yet-unrealized energy supplies sold at some unknowable market price in the future.

All of this is done so that our major allies can become dependent for 25 percent of their natural gas supplies on the country that did not hesitate to cut off energy shipments to Yugoslavia in 1948, to

Hungary and Israel in 1956, to Czechoslovakia in 1968, and to use its energy leverage over Poland in 1981.

MAJOR FOREIGN POLICY DEFEAT

If Presidents Brezhnev and Helmut Schmidt sign that agreement, it could mean a major foreign policy defeat for the United States, in a battle that we did not begin to fight until the victor was already carrying off the spoils.

The past administration did nothing while the enemy gathered its forces. President Reagan sounded the battle cry at Ottawa, but our army never seemed to have mustered. Finally, last week, just 19 days before Mr. Brezhnev was due in Bonn, a U.S. delegation arrived to try to pursuade the West Germans to see the folly of the project that was already in the final stages of being concluded. According to the reports, we looked rather foolish.

Today's hearing will examine what went wrong, what is going wrong, and what we can do about it. Hopefully, we can also learn what can be done to keep the West from again falling into the trap of being outmaneuvered by the East. Not only do we seem to have difficulty working out an equitable trading relationship with the Soviets; we also seem to be unable to respond to the dangers of that relationship.

When those are dangers to our national security, it becomes totally unacceptable to this Senator. There is a recurrent ineptness in our trade with the East which must be rectified.

In written testimony submitted for this hearing, Dr. Anthony Cordesman, a fellow of the Woodrow Wilson Center for Scholars, highlighted our political clumsiness, noting that the natural gas pipeline, "marks yet another major crisis in East-West trade which somehow 'snuckup' on the United States," that, "follows in a grand tradition of being unready to manage our grain sales and a grain embargo, of faltering efforts to control technology transfer, of ignoring the growth of Soviet arms exports as a leading source of hard currency earnings, of ignoring the implications of the expansion of Soviet bloc commercial air traffic and maritime trade, and of dealing with the problem of strategic mineral exports on a haphazard and episodic basis."

In his testimony, Dr. Cordesman recommends that I reintroduce my proposal for the establishment of an Office of Strategic Trade. This episode and others certainly do highlight the need for a better system of management of U.S. trade. Perhaps these hearings will show that Dr. Cordesman is right.

CRITICAL QUESTIONS UNANSWERED

Turning to the issue of the Yamal Pipeline itself, this is a very curious deal, one which leaves a number of critical questions unanswered.

Just how much is the pipeline going to cost? Estimates range from as low as $15 billion to as high as $45 billion. That is just with regard to the pipeline.

How much more will the Europeans be required to pay, to make the pipeline work once it is constructed?

What in the way of followup projects will the Soviets be able to force or lure the Western Europeans into?

Soviet gas reserves are still unrealized. Just how big are they, in terms of gas that can actually find its way onstream? Our intelligence community is divided on this issue.

What kind of a market will the gas find, once delivered? The market for gas in Western Europe is already a good deal softer than was predicted a few years ago.

Will the Soviets actually be able to pay back their debts to the West, as they claim they will?

What is the Soviet Union going to charge for the gas?

What are the risks of Soviet gas prices reinforcing, rather than relieving, OPEC pressures by charging equivalent prices per Btu?

How much does Western support of the pipeline contribute to easing the Soviet Union's own energy problems, as they move from oil to natural gas?

How much does this Western support aid the Soviets in maintaining their leverage over the Warsaw Pact, as Eastern Europe's "company store" for energy?

Why did it take until just 3 weeks before Brezhnev's visit to West Germany for a high-level U.S. delegation to go to Bonn to express our interest on the pipeline project?

These are just some of the questions. I'm looking forward to hearing answers to these and others in the course of these hearings. These are not rhetorical questions; they demand answers. The issues go right to the heart of U.S. security, and in fact to the security of the entire free world. If this is representative of the state of Western policymaking, then we are in grave danger. I see no slackening of Soviet expansionism. I fear a slackening in Western resistance.

I personally do not think that things have gone too far. This is a bold and imaginative administration that has shown its willingness to deal with the tough issues. The Yamal Pipeline was conceived half a decade ago, and was brought to life during the previous administration. Had the United States done something about it then, especially in light of the invasion of Afghanistan, we would not be in the difficulty that we find ourselves in now, trying to turn things around at the 11th hour.

The previous administration acquiesced and the project went ahead when it could have been more easily stopped. I'm glad to see that this administration is at least, finally, taking some action to try to turn this thing around. The Europeans are dealing a little more cautiously.

U.S. DELEGATION TO EUROPE

It's not enough, but we're meeting here today to consider what more can be done. I mentioned that a U.S. delegation went to Europe last week. We postponed this hearing so that we could receive a report on those negotiations. I am disappointed that Mr. Rashish, the Under Secretary of State who led the delegation, could not be here today. We did postpone this hearing so that he could appear; now it seems that he has remained abroad longer

than was planned. Let's hope that that means progress in our efforts.

We will, of course, invite him to testify in an open hearing next week, if possible, so that we can get a full report from the head of the U.S. delegation. I'm sure that he would be quite willing to share with the committee his findings, and to inform us as to how we might be able to help in an effort that involves the security of each of us.

Mr. Hormats has agreed to testify and to answer questions today, although he was not a member of the delegation. He is joined by two other administration officials involved in this issue. We appreciate the appearance here of each of our witnesses today, and I'm looking forward to the testimony.

I can't emphasize enough how upset I am that we would go forward with a project of this kind, that would be so helpful to the Soviet Union, and play little games with the grain embargo. We really hurt them tremendously after Afghanistan, by talking about that. We had such things as a draft registration, and I'm sure we just scared the hell out of them with all those dramatic actions that we went through. Now we're talking about aiding and abetting the enemy with a monumental project to make our West European allies more dependent upon them, help them in their economy, help them be able to divert more money to military efforts against this country.

I fail to understand that, so I hope we're able to get some answers today.

Our first witness is the Honorable Jim Nelligan.

Congressman, we appreciate your willingness to appear here today, and will be happy to hear your testimony now. Before we begin let me insert in the record the statement and material we received from Dr. Cordesman.

[The information follows:]

THE STRATEGIC IMPLICATIONS OF THE YAMBURG GAS TRANSMISSION SYSTEM

by

Anthony H. Cordesman

Fellow

Woodrow Wilson International Center for Scholars

Thank you Mr. Chairman,

I am deeply concerned with the strategic implications of the Yamburg Gas pipeline being discussed here today. I am not going to quote yet another set of statistics regarding the risks it creates in terms of European dependence on the Soviet bloc for energy, or on the implications of such European capital flows to the U.S.S.R., but I believe that the financing of this pipeline will make our NATO allies vulnerable to Soviet political and economic pressure, and make them even more vulnerable in a crisis of war.

THE PROBLEM OF ADDITIONAL RISKS

I must also state that one reason I am not quoting such statistics is that I believe that we do not have useful data on several major risks which go beyond the immediate issue of European dependence on this particular pipeline. These risks include:

- Our inability to predict the combined impact of West European imports of coal, oil, and gas from the Soviet bloc, and the resulting dependence and vulnerability.
- The difficulty in predicting the true cost of the pipeline, and the eventual cost to the West of making the pipeline work once Europe becomes committed to the project.
- The total inability to predict Soviet gas reserves, and the extent to which the current pipeline will be followed by others.

- The virtual impossibility of predicting the long term prices that the U.S.S.R. may charge Europe for delivered energy, whatever the current agreement may appear to say, and the risks of Soviet gas prices reinforcing OPEC by charging equivalent prices per BTU.
- The difficulty of predicting the extent to which Western support of this pipeline will ease the U.S.S.R.'s interval energy problems and ensure its continued control over its satellites in Eastern Europe by giving it the ability to continue to be their major energy supplier, regardless of whether it can continue to export oil.
- The extent to which the current pipeline deal will be followed by "downstream" arrangements increasing Europe's dependence on related petrochemical products, and force Western Europe to transfer technology to the U.S.S.R. to maintain Soviet energy supplies.
- The impossibility, given the current analytic chaos in the U.S. intelligence community, of determining whether the pipeline would have any strategic benefits to the U.S. by reducing the Soviet incentive to compete with the West for supplies of imported oil.

TAKING A POSITION ON THE PIPELINE

These risks, coupled to NATO's growing conventional and nuclear inferiority to the Warsaw Pact would normally lead me to encourge this Committee, the Congress as a whole, and the Administration to do everything it can to persuade our European allies to back away from this pipeline. I believe that European financing of the Yamburg line may well signal a major shift in the leverage the U.S.S.R. will have over Europe, that it will couple economic leverage to Soviet military leverage for the first time, and that it will deprive the U.S. of the economic leverage it has previously had over the Soviet bloc through the ability to control its agricultural exports and key technologies.

Yet, much as I would like to give this advice, I do not believe it would be responsible. As dangerous as this pipeline may ultimately be to our security and that of our allies, I believe that any strong U.S. effort to block the pipeline would be even more dangerous. I say this for the following reasons:

- First, the crisis in European-American relations is now so serious that we have little chance of succeeding in blocking the pipeline by putting pressure on our allies. If we attempt to do so, we may well give massive new ammunition to those movements in Europe which are now actively trying to make the U.S. seem the major threat to Europe's security, and which seek to

halt to NATO Long Range Theater Nuclear Modernization program. I believe that these pressures are becoming so strong that we must pick our targets carefully, and that our priority must be to win support for increasing NATO's military strength. Further, I believe, that whatever the economic and military risks, the current political realities are such that we cannot persuade the European's to do anything on this issue that they will not do out of their own accord.

- Second, I do not believe that we can credibly offer our allies alternatives to the pipeline. Before coming to the Wilson Center, I spent four years as one of the senior career professionals in the Department of Energy reviewing large-scale energy supply projects in synthetic fuels, coal-oil mixtures, coal supply, and oil and gas. While I would not defend the overall quality of DOE's efforts during this period, and I strongly support the reorganization of the Department under the Reagan Administration, I believe that we did do a creditable job of reviewing the options to increase our nation's energy supply, and of laying the ground work for a synthetic fuels industry.

In that regard, I have heard virtually all of the proposals and promises regarding increased coal production, and other U.S. substitutes for European dependence on the Yamburg pipeline, before. I did not find them believable even in the far less demanding context of increasing U.S. energy supplies. The projects and concepts which are now being touted to solve Europe's problems have previously emerged as being undercosted, as understating risks, as underestimating the time required to bring new supplies on line, as underestimating the risks of scale-up and project failure, and as promising more energy, and in a more transportable and fungible form, than could actually be delivered.

In short, while I strongly encourage efforts to export American coal to compete with the Yamburg pipeline and other Soviet bloc energy exports, I do not believe that we can credibly offer our allies credible near term energy alternatives. Worse, I would caution that many of our European allies have watched our domestic progress in energy R&D and production, for more than half a decade, and have even shared in some of our abortive efforts to bring new energy supplies on-line. As a result, I believe that they are likely to be extremely--if not totally--skeptical of any major American energy supply initiatives which come from the

federal government, as distinguished from American industry. I share their skepticism, and I must also caution that even the most nationalized or socialist energy sectors in Europe put what faith they have in American technology and innovation in the capabilities of our largest energy firms. Europe is not ready for us to try to export Project Independence.

- Third, many of our problems with Europe over such issues as the LRTNF program, our "hard line" on the U.S.S.R., arms control, and detente, are the outgrowth of the fact that Europe is now in a depression. Europe blames this depression on high energy prices and American interest rates as much as anything else. I do not argue the justice of such European efforts to export the causes of Europe's economic problems, but I do believe they will make it exceptionally difficult for the U.S. to put pressure on Europe over the Yamburg pipeline.

I also use the word "depression" advisedly. For many Europeans, the current situation is one of a direct economic threat to their social role and status, not simply a recession in living standards. It is true that welfare and the "dole" cushion such Europeans, but this is not the point. The current crisis in Europe has

halted a still developing reduction in Europe's class and social barriers, and it now threatens many Europeans in a way they have not experienced since World War II. It is pushing many of them towards the extremes of the political spectrum, and many into a part of Europe's social democratic politics where left-wing economics have always been deeply coupled with pacifisim, if not with tacit support of the Soviet Union.

I believe that we must tread very carefully in light of these developments. Europe's best politicians are having deep trouble with these pressures and movements, and if there is anything that the conduct of American foreign policy has demonstrated on a bipartisan basis over the last decade--it is that we are not Europe's best politicians. I believe we must do everything we can to avoid a situation where we catalyze a combination of these economic developments and current political resentments of the U.S. into a coalition against both the U.S. and the European political leaders who are our strongest friends and best advocates.

I must also note that I raise these reasons for not actively opposing the pipeline as a mildly "hawkish" conservative. I

do so because I believe that it is far better to be pragmatic than ideological, and because I believe that we have higher national security priorities.

ALTERNATIVE OPTIONS AND ACTIONS

I am not, however, recommending that this Committee or the U.S. do nothing. I believe it would be counter-productive for the U.S. to put more than polite pressure on European political leaders, to try to block the financing of the pipeline, to try to use technology as a weapon, and to make promises regarding alternative energy supplies which we cannot keep. I also believe, however, that we have six important options where we can act safely and effectively:

- o First, by encouraging our allies to provide a number of safeguards to minimize the risks posed by the pipeline.
- o Second, by continuing to clearly lay out the risks inherent in the pipeline by expanding the scope of the effort to study the pipeline, and by continuously referencing these studies in discussions with our allies and the European media.
- o Third, by creating "linkage" between support of the pipeline and other major policy issues.
- o Fourth, by asking key elements of American industry to undertake a study of how the U.S. can

compete with the pipeline, and to offer Europe long term alternatives. This will ensure we are prepared to limit the future growth of European energy dependence on the Soviet bloc, and help Europe move towards the expanded use of American coal.

- Fifth, by learning from the fact that our present inability to deal with the Yamburg Pipeline is the result of our lack of effective organization to deal with East-West trade issues and as economic warfare. We need to set up the kind of strategic trade organization within the Federal Government that Senator Garn has proposed during the last session of Congress in Senate Bill S. 2602.
- Sixth, by strengthening our intelligence effort in Soviet bloc energy and by forcing DIA and CIA to fully surface their differences over virtually all of the major energy issues relating both to the pipeline and Soviet energy balances, and to work most closely with experts in industry.

Since time is short, let me touch briefly on a few details of these options.

POSSIBLE SAFEGUARDS

At least some of the risks inherent in the pipeline can be minimized by asking our allies to expand their oil stocks and

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reserves, to expand North Sea gas development, to integrate their pipeline system to allow maximum flexibility in reallocating gas supplies, and to create gas reserves. I would endorse these suggestions, along with the idea of preserving and expanding convertibility from gas to oil or gas to coal wherever possible, and creating contingency plans that might allow expanded use of electricity in an emergency. The U.S. must not expect too much from our allies in this regard in the near term, but the time window for the pipeline gives Europe nearly a decade to deal with the problem and it should be able to accomplish a great deal.

Other safeguards would include identifying all the areas where the Soviet bloc has a significant dependence on the West, and being prepared to react to any Soviet misuse of its gas exports by reprisals in kind. Such reprisals could include restrictions on technology tranfer, bans on bloc freedom of maritime and air movement through Western Europe and the free world, bans on Soviet bloc exports, freezes of new capital loans, and a host of other measures. The key will be our readiness to respond to both subtle or graduated pressures, and major Soviet bloc attempts to put pressure on Europe. The West must be prepared for the possibility the U.S.S.R. will juggle gas prices, reliability of service, and volume of delivery in comparatively complex ways to attempt to divide the West and pressure individual European nations.

Further, as the pipeline goes forward, the U.S. should encourage Europe to finance it on a basis where it retains control of the necessary assets as long as possible, and where the West retains as much leverage on future investment as possible. This is necessary not only to protect Western security, but to control price rises, and to limit the "pass through" of cost escalation or other charges the U.S.S.R. could use to pressure Europe into additional loans and commitments, or dollars transfers.

DESCRIBING THE RISKS

We should also ensure the European agreement to the pipeline does not mean that the U.S. suddenly loses interest in this issue. We should encourage every effort by NATO, the EEC, OECD, and the IEA to report on the progress of the pipeline, and to report the risks posed by European dependence on Soviet bloc energy exports on at least a semi-annual basis. We should make sure that the issue remains constantly on the diplomatic agenda, and that U.S. pressure on Europe to take the necessary safeguards, and to avoid a further expansion of European dependence on the Soviet bloc, continues steadily through the 1980s.

As part of this pressure, I believe that it would be wise for this Committee, in cooperation with the other relevant bodies of the Congress, to direct that the President prepare an annual report on the risks posed by all aspects of Soviet energy development and East-West trade so that issues like the Yamburg pipeline will continue to receive the proper attention

and be placed in their overall context, and not be dealt with as isolated risks. Similarly, I believe that it would be wise to build on the reporting already done by the Congressional Research Service and the Joint Economic Committee, and to prepare a semi-annual Congressional Report on this issue which could be free of the constraints that diplomatic courtesies place on the Executive Branch and provide a fuller range of opinion.

I believe that this kind of continuing, hard hitting, information campaign might do much to persuade our European allies to fully examine every problem and action relating to this pipeline. Above all, it would act as deterrent to the expansion of Soviet bloc gas exports and to expanding any combination of the vulnerabilities created by the Yamburg Pipeline with vulnerabilities in other areas of East-West trade. The issue, after all, is not this pipeline, but the broader implications of the kind of East-West trade that will build-up in the 1980s. With sufficient attention, it should be possible to develop such trade along lines that are safe for the West. Without such attention, the Yamburg pipeline may be only the first of our worries.

CREATING LINKAGES

I also believe that we should enact a diplomatic price for our tacit agreement to the pipeline from both our allies and the Soviet bloc. First, I believe that we should take every step

possible through quiet and discrete diplomacy to link our acceptance of the pipeline to European efforts to strengthen NATO and particularly to their acceptance of NATO's long range theater nuclear force improvement plan. I believe that such "linkage" should be an essential part of our future diplomacy. We should not accept a European definition of "detente" that weakens Europe economically and militarily, while it leaves the U.S. tied to Europe through our forces in NATO and the "umbrella" of our strategic forces.

Second, I believe that we should make every effort to link the pipeline issue to Soviet non-intervention in Poland. I have asked the Committee staff to circulate a separate article I have written on this issue, and while I believe that we cannot expect our allies not to fund the pipeline <u>if</u> Poland is left to chose its own destiny, I believe we have every right to expect them to halt their support of the project the moment the Soviet Union intervenes in Poland. The alternative would be the most shameful single act by the Western democracies since Munich. It would not even have the intellectual dignity of appeasement since it would be moral cowardice without even the rationale of an urgent threat.

Third, I believe that we should make it clear to our allies and the U.S.S.R. that the U.S. is prepared to act strongly, and unilaterally if necessary, to enforce this linkage. Specifically, it should be made clear that future U.S. grain sales, trade, and credits will depend on <u>both</u> Soviet nonintervention

in Poland and Soviet discretion in using its gas supplies to Europe as a political or economic weapon. It should be made equally clear to our allies and the U.S.S.R. that we will not pursue a "dual track" towards the Warsaw Pact in regard to arms control in an environment where the U.S.S.R. acts hostile against Poland or the West.

Fourth, I believe that we should actively explore a linkage between Western financing of the Yamburg pipeline and any further Western credits to the Soviet bloc. In particular, we should seek to link the financing of the pipeline to the need to refinance Poland's debt and provide it with the additional loans it needs to have some hope of economic recovery and of bringing together the moderates of the Polish Communist Party and Solidarity. This could be done by tying the financing of the Yamburg pipeline to clear Russian guarantees of Western refinancing of the Polish debt and of the additional loans now necessary. While I realize that such "creative financing" is scarcely a routine measure, the Soviet Union is not a routine trade partner.

PREPARING ENERGY ALTERNATIVES FOR THE FUTURE

I also believe that we should actively encourage American industry to present plans and proposals that can both provide Europe with sources of energy that might compete with the gas provided by the Yamburg Pipeline, and which will offer Europe alternatives to increased dependence on Soviet bloc energy exports in the future. I stress encouraging "American Industry"

because all my experience in the Department of Energy leads me to distrust the competence and credibility of federal efforts in this area. While I believe that the Department of Energy is a much more realistic body today than it was two years ago, I still believe that the most that the Federal government can and should do in this area is to encourage the actions of the private sector.

This Congress could do a great deal to encourage the various major industrial associations dealing with Gas, Oil, and Coal, and Nuclear power to conduct such studies, as well as such institutions as Brookings and AEI. In this regard, it would be helpful to provide data and suggestions from the various Congressional research groups, such as the CRS, OTA, and CBO, and to encourage the Department of Energy to make this a major planning activity. Since both the CRS and DOE have already done impressive work of this kind, I believe they could make a major contribution in assisting the efforts of the private sector. This kind of federal effort would be extremely helpful to the private sector, and avoid creating another bureaucratic disaster like Project Independence, NEP-1, President Carter's "60 Day" coal study, or the kind of rushed planning that created the Synthetic Fuels Corporation.

We must also be careful not to encourage the private sector to assume that the Federal government will provide any new financial incentives in this area, or take the lead in finding new market for coal in Europe. We must be equally careful not

to encourage Europe to believe that we will provide any economic aid, or somehow buy them out of dependence on Soviet gas. We must not try to plan within the federal government what we lack the competence to plan. Our emphasis should rather be on supporting a diversity of efforts by American industry to develop new energy alternatives, and we should provide direct federal assistance only when the rationale for such assistance has been made overwhelmingly clear.

CREATING AN OFFICE OF STRATEGIC TRADE

I also strongly recommend that move to put our own house in order. This marks yet another major "crisis" in East-West Trade which somehow "snuck up" on the U.S. government by being a matter of public record for half a decade. It follows in a grand tradition of being unready to manage our grain sales and a grain embargo, of faltering efforts to control technology transfer, of ignoring the growth of Soviet arms exports as a leading source of hard currency earnings, of ignoring the implications of the expansion of Soviet bloc commercial air traffic and maritime trade, and of dealing with the problem of strategic mineral exports on a haphazard and episodic basis.

I believe that the Yamburg pipeline clearly demonstrates the necessity of creating a central organization within the Federal government that will bring together all the strands of East-West trade, that will provide warning of new developments and vulnerabilities, that will administer trade control programs

from a national rather than parochial viewpoint, which will formulate contingency plans for economic sanctions, and which can be held responsible for our security on an economic level just as the Department of Defense can be held responsible on a military level.

In this regard, I would urge Senator Garn to again send forward his bill to create an Office of Strategic Trade, with a suitable expansion of its duties and responsibilities. I believe that further consideration should be given to making this office part of the State Department, but I recognize the progress that the Department of Commerce has made, and that it also has a natural responsibility in this area. My main concern is that someone in the Executive Branch should finally be put firmly in charge. Our military confrontations with the Soviet bloc are few and far between. Our economic confrontations are constant, seem to steadily favor the other side, and reflect a steady erosion of the West's position. We should act accordingly.

STRENGTHENING OUR INTELLIGENCE EFFORT

Finally, I recommend that this Committee ask the Senate Select Committee on Intelligence to make a full and comprehensive investigation of the adequacy of our intelligence effort on Soviet bloc energy resources. While I do not wish to dwell on details, I have read much of the material that CIA and DIA have produced at various levels of classificiation for the last five years.

I am very impressed with the work of the individual analysts involved, but I am far from impressed with the program made in surfacing differences between the CIA and DIA over Soviet bloc energy developments that have clearly been classified at the codeword level only to avoid exposing bureaucratic conflicts. Further, I believe that the seeming "convergence" between the two agencies over estimates of Soviet energy production exists in only a few of their more public conclusions, and that the differences in their inputs, methods, and detailed conclusions remain as serious, if not more serious, than ever.

I must confess that I lean towards the positions of DIA, in this controversy, but I do not believe backing one agency over the other is the issue. We need honest data on how much we know and don't know about Soviet bloc oil production and resources, Soviet bloc gas development, Soviet bloc nuclear developments and Soviet bloc coal. The uncertainties and controversies surrounding the Yamburg issue are frightening, but the pipeline is only one of the problems raised by Soviet bloc energy imports and exports.

I would also remind the Committee that our allies have virtually no independent ability to gather technical intelligence on Soviet bloc energy developments, and that must rely on U.S. sources, commercial sources, or on Soviet sources, many of which deliberately manipulate or omit key data. If we wish to persuade our allies to take our warnings seriously, we cannot

afford a situation where the problems and uncertainties we face in regard to Soviet energy are not fully documented and where the intelligence community does not release as much data as possible. We cannot afford hidden differences between the major elements of the intelligence community which surface only when one element proves to be so obviously correct that the other must finally concede. Getting the right intelligence on Soviet energy is as important in persuading our allies to take action, and to putting our house in order, as organizing effectively to do something with that intelligence once we receive it.

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EAST-WEST TRADE: ANALYZING TECHNOLOGY TRANSFER FROM A NEW PERSPECTIVE

by

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Revised July 14, 1981

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There are some strong signs that in spite of the Reagan Administration's uncertain handling of its cancellation of the grain embargo, the U.S. may finally be developing the capability to control several critical aspects of East-West Trade. Lawrence J. Brady has just been confirmed as Assistant Secretary of the Department of Commerce for Trade Administration with the clear understanding that he will enforce the controls which have existed more in name than in reality, on technology transfer to the Soviet Union. The U.S. has finally cracked down on the use of Aeroflot to illegally export U.S. technology, and although the first effort to enforce U.S. trade controls misfired, the Administration succeeded in sending a long overdue signal to the U.S.S.R. that the U.S. intends to start practicing the trade policy it preaches.

The Administration should soon declassify some of the details of the vast espionage network the U.S.S.R. has established in the U.S. and Europe to obtain key U.S. technologies, and Senator Jake Garn has a bill (S. 2606) waiting in the wing that would establish an Office of Strategic Trade in the Department of Commerce. This office would put one well-staffed organisation in charge of all interagency operations controlling U.S. trade, and to act as a signal point of liaison with U.S. industry and the public.[1]

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1 See Deborah M. Kyle, "New Strategic Trade Office Proposed," Armed Forces Journal, December, 1980, pp. 14 and 57.

If established, such an Office of Strategic Trade would finally ensure that the U.S. properly examined its cultural exchange and other educational programs to prevent the Soviets training defense personnel in key technologies, and would establish branches to collect technology data and conduct technology assessment, as well as to establish separate offices to control exports of computers, capital goods, electronics, munitions, and materials in short supply. It would also provide tight new links to the Coordinating Committee (COCOM) that is the international forum for controlling the West's trade with the Soviet bloc.

With luck, these steps would put an end to exports like the Centralign-B ball bearing equipment the Soviets used to improve their ICBM accuracy and which will now cost the U.S. billions in new basing modes to reduce the vulnerability of U.S. strategic forces.[2] The U.S. would stop exporting "civil" technology whose dual use in military roles gave the Soviets many of the trucks they used to invade Afghanistan.[3] They would help put

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2 In 1972, the U.S. sold the U.S.S.R. 164 Bryant Centralign-B grinders capable of manufacturing the ball bearings used in ICBM guidance platforms to specifications of 25 millionths of an inch. The U.S.S.R. had sought this system since 1960. The U.S. netted between $20 and 25 million for the sale. The resulting increase in Soviet ICBM accuracy will cost the U.S. between $6 and $9 billion in improved basing modes between 1978 and 1988.

3 The Zil trucks involved are also used as the chassis for Soviet missile carriers. Ironically, the U.S. just barely blocked the sale of equipment that would have doubled the Karma River plant's capacity about four months after the Soviet invasion of Afghanistan. See James Coates, Chicago Tribune, April 14, 1981, and the Congressional Record, April 29, 1981, p. E. 1962.

an end to the KGB's use of third party or country exports to acquire critical military technologies through fronts of friendly corporations in countries like Sweden, Finland, West Germany, Japan, and Hong Kong.

At the same time, however, the measures now under consideration can solve only part of the problem. They will not prepare the U.S. to deal with the overall issue of East-West trade. They will not prepare the U.S. to use its trade with the U.S.S.R. to put pressure on the U.S.S.R. in the face of another act of agression, or help the U.S. do a better job of dealing with its allies than it did in the Iran embargo, the grain embargo, or the Olympic boycott. They will not provide a basis for analyzing the extent to which the U.S.S.R. uses East-West trade as a strategic weapon in its struggle with the West, rather than as a force for detente. They also may not even succeed in controlling technology transfer unless the American public and our allies understand just how important the control of technology transfer has become given the West's eroding position in defense technology.

If the U.S. is to help compensate for the gross inferiority of its defense expenditures relative to those of the U.S.S.R., and for an inferiority in its defense technology effort that will only be slightly reduced by the expanded Reagan defense budget, it must take a new approach to East-West trade. It must look beyond the classic arguments for and against East-West trade, and approach the problem from a new perspective.

A. THE OVERALL PROBLEM OF MANAGING EAST-WEST TRADE

A new perspective towards East-West trade is essential if only to clarify its true merits, and to understand the risks such trade creates for the West. The alternative is to analyze East-West trade almost totally in terms of its economic impact or contribution to "detente," but this provides little basis for understanding its strategic implications. In fact, from such traditional perspectives, it is difficult to formulate any East-West trade policy at all.

On the one hand, the classic arguments for East-West trade are that it will (a) promote detente, (b) break down the cultural and information barriers established by the Eastern bloc, (c) forge an economic interdependence that will create an incentive to avoid conflicts and crises with the West, (d) introduce a new Soviet pragmatism towards capitalism, and (e) furnish a peaceful mechanism through which the West can offer the Soviet bloc incentives for reducing its military and ideological challenge to the West. Similarly, it has been argued that East-West trade can be used to promote contacts with Eastern European nations, and weaken Soviet hegemony by giving them increasing economic independence and liberalization, that such trade gives the West a lever in ensuring the freedom of Soviet intellectuals and dissidents, and that trade is an important lever in allowing Soviet Jews to leave an increasingly anti-Semetic Soviet Union.

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On the other hand, the classical arguments against East-West trade are (a) that it does not promote true detente, but rather allows the Soviet system to compensate for critical economic weaknesses that would otherwise prevent it from maintaining its current level of defense expenditure, (b) that it allows the U.S.S.R. to maintain its present rigid control over its own population and East European satellites in spite of the "contradictions of communism," (c) that, East-West trade is not promoting true interdependence, but rather is creating a situation where the Soviet Union can buy its way out of its agricultural crisis without having to reduce its strategic competition with the West, where East Europe has solved its capital formation and consumer problems at Western expense by borrowing money it may never be able to fully repay, (d) that most high technology trade has simply led to grossly underpriced transfers of military and industrial technology to the Soviet bloc without a significant increase in long term trade or interdependence, and (e) that the U.S.S.R. is now aggressively using such deals as natural gas sales to West Europe to make Europe dependent on Soviet good will. It is also argued that trade offers the West only cosmetic leverage to protect Soviet intellectuals, Soviet Jews, and East European "liberals." The Soviet Union has learned that it can blackmail the West over human rights for far more trade and benefits than its actions

are worth, and that it can exile dissidents who become dangerous while buying off the rest of Soviet intelligensia by allowing it to have limited contact with the West.

It is a classical thesis in law that "bad cases make bad law," that difficult legal cases involving complex issues and the appearance of an equal weight of evidence on both sides, lead to uncertain decisions which establish bad precedents. East-West trade policy, and particularly technology transfer, has this same "bad case" character. The conventional arguments for any given trade policy or technology transfer are almost always complex, and, if East-West trade is approached from the traditional U.S. perspective, enough evidence exists to support virtually any position.

There is no way to prove what the impact of East-West trade will be on Western security, or to establish the exact nature of the attitudes and goals of the Soviet leadership regarding such trade.[4] While it is possible to assemble a great many individual examples, and statistical indicators to support the "pro" or "con" case, such arguments do not essentially cancel each other out. The only way one can firmly take a position on East-West trade on the basis is of traditional "pros" and "cons" is on the basis of personal judgement or political philosophy.

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[4] While CIA has not released extensive research in this area, the State Department's Bureau of Intelligence and Research has sponsored work by Professor Bruce Parrott of SAIS which largely substantiates these comments. See INR FAR 28849, and INR/XRS-35.

This weight of evidence shifts, however, if the East-West trade is examined from a broader perspective, and in terms of the overall trends in U.S. strategic competition from the Soviet Union. When a politico-military perspective is added to such traditional arguments, the risks of East-West trade seem to increase sharply, and the case for tight Western controls on East-West trade becomes much stronger.

B. THE GROWING IMPORTANCE OF EAST-WEST TRADE

One thing about East-West trade is clear. It is increasingly important to the Soviet leadership in both economic and strategic terms, and it involves far more than technology transfer. Tables One, Two, and Three help to put the trends involved in perspective:

- o Overall Patterns in East-West Trade

  Table One shows the overall patterns in East-West trade, and the U.S. share of that trade. While this graph is somewhat dated, and predates the U.S. grain embargo, it shows that East-West trade has become a significant part of overall Soviet bloc economic activity. Department of Commerce and CIA data released since Table One, also show that the Soviet bloc and U.S.S.R. continue to expand its trade with the West.[5]

  Department of Commerce data issued since Table One was prepared indicate that total Western exports to the Soviet bloc rose from $31.0 billion in 1975 to $37.0 billion in 1979, and 39.3 billion in 1980. The Western trade surplus was $6.4 billion in 1978, and $4.0 billion in 1979, but declined to nearly zero in 1980. Total Western exports to the U.S.S.R. increased from $13.3 billion in 1978 to $16.5 billion in 1979, and $16.9 billion in 1980. The total balance of trade led to

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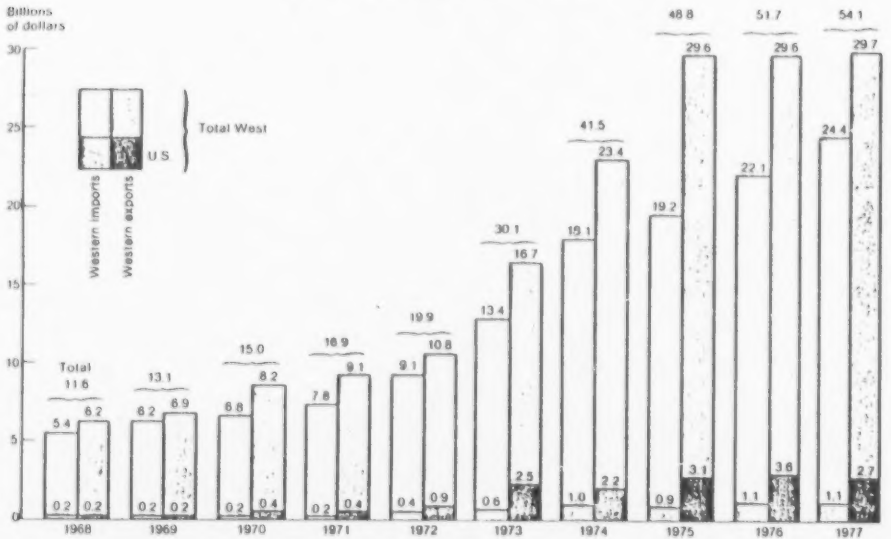
[5]CIA ER 80-10452 and letter from Lawrence J. Brady, Assistant Secretary for Trade Administration Department of Commerce, June 18,1981. These figures are shown in detail in Appendix One.

TABLE ONE

GENERAL PATTERNS IN EAST-WEST TRADE: 1968-1978

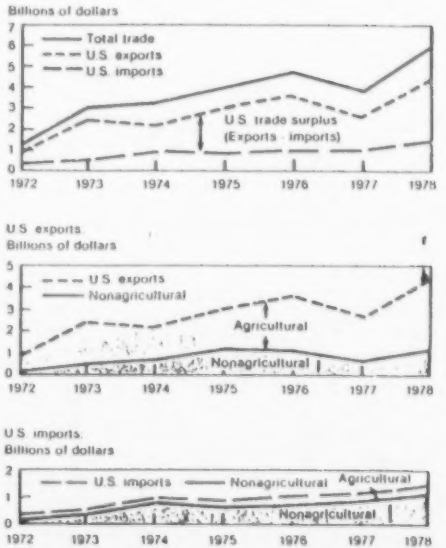
Figure 1.—East-West Trade and U.S. Share



East = Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, U.S.S.R., and PRC
West = Austria, Belgium, Canada, Denmark, West Germany, France, Italy, Japan, Luxembourg, The Netherlands, Norway, Sweden, Switzerland, United Kingdom, and the United States

SOURCE: *Selected Trade and Economics Data of the Centrally Planned Economies*, U.S. Department of Commerce, Industry and Trade Administration, Bureau of East West Trade, 1979

Figure 2.—U.S.-Eastern* Trade, 1972-78**



*Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, U.S.S.R., and PRC
**1978 trade estimated imports do not include U.S. imports of nonmonetary gold from U.S.S.R.

SOURCE: *Selected Trade and Economic Data for the Centrally Planned Economies*, U.S. Department of Commerce, 1979

a Western trade surplus of $1.9 billion in 1978, $344 million in 1979, which declined to a deficit of $149 million in 1980. CIA figures using a somewhat different definition show that Soviet imports from developed non-communist countries rose from 8.1 billion in 1974 to $13.4 billion in 1977, and 19.7 billion in 1979. Soviet imports will almost certainly exceed $23 billion in 1980.

The U.S. share of trade with the East rose from exports of $4.5 billion in 1978, to $7.4 billion in 1979, and $7.7 billion in 1980. Although this growth tapered off in 1980, the decline in the growth of U.S. trade with the East was almost solely the result of the grain embargo. U.S. non-agricultural exports rose from $1.2 billion in 1978, to $1.9 billion in 1979, and $2.5 billion in 1980. In contrast, U.S. agricultural exports rose from $3.3 billion in 1978 to $5.5 billion in 1979, but leveled off at $5.2 billion in 1980. U.S. imports from the U.S.S.R. have been substantially less than half of U.S. exports, and have not followed the general trend in East-West trade. The U.S. trade surplus with the U.S.S.R. was $2.7 billion in 1978, $5.0 billion in 1979, and $5.1 billion in 1980. As might be expected, U.S. imports from the U.S.S.R. are also largely non-agricultural. Such imports rose from $1.8 billion in 1978, to about $2.5 billion in 1979 and 1980. Agricultural imports were constant at $300-400 million during the same period.

TABLE TWO

SOVIET DEPENDENCE ON GRAIN IMPORTS
(TOTAL GRAIN INC. WHEAT, COARSE GRAINS AND MISC.)

	1971	1972	1973	1974	1975	1976	1977	1978	1979
A. DOMESTIC PRODUCTION									
1. Actual (Million Tons)	171.4	158.4	210.7	181.6	132.0	211.8	184.7	226.1	171.3
B. IMPORTS									
1. Total (Million Tons)	7.8	22.5	10.9	5.2	25.6	10.3	18.4	15.0	30.5
2. From U.S. (Million Tons)	2.9	13.6	7.9	2.3	13.9	7.5	12.5	11.1	15.3
3. U.S. As % of Total	37 %	60 %	72 %	44 %	54 %	73 %	68 %	74 %	50 %
C. TOTAL CONSUMPTION (Million Tons)	169.5	177.3	201.8	193.9	171.1	208.1	215.0	219.7	217.3
D. IMPACT OF IMPORTS									
1. Percent of Total Consumption	5 %	13 %	5 %	3 %	15 %	5 %	9 %	7 %	14 %
2. Percent of Domestic Production	5 %	14 %	5 %	3 %	19 %	5 %	10 %	7 %	18 %
E. COST OF GRAIN IMPORTS									
1. Estimated Dollar Cost of Imports (Millions $)	72.5	652.5	1264.0	676.0	2073.3	1977.6	1232.8	1965.0	4483.5
2. Dollar Cost of Imports As A % of Total Soviet Imports	.7 %	4 %	6 %	3 %	6 %	5 %	3 %	4 %	
3. Dollar Cost of Grain Imports From U.S. (Millions $)	26.9	394.4	916.4	299.0	1125.9	1440.0	837.5	1454.1	2249.1
4. Dollar cost of Grain Imports From U.S. As A % of Total Costs of Grain Imports	37 %	60 %	72 %	44 %	54 %	73 %	68 %	74 %	50 %

1971 MT Grain - $ 9.3
1972 MT Grain - $ 29
1973 MT Grain - $116
1974 MT Grain - $130
1975 MT Grain - $ 81
1976 MT Grain - $192
1977 MT Grain - $ 67
1978 MT Grain - $131
1979 MT Grain - $147

Adapted From: USDA Agricultural Situation: USSR; Review of 1979 and Outlook for 1980, and USDA; Statistical Report USSR, and CIA; Handbook of Economics Statistics.

- U.S. Grain Exports to the U.S.S.R.

  Table two shows the patterns in U.S. grain exports to the U.S.S.R. While some of the data in Table Two are based on U.S. statistics which raise serious questions about U.S. ability to precisely measure total Soviet currency flows for grain imports, and to develop comparable data on Soviet military and civil trade figures, there can be no doubt that this aspect of East-West trade is critical to the Soviet economy.

- Western Capital Exports to the Soviet Bloc

  Table Three shows the importance of capital imports to the Soviet bloc, and their ten-fold growth over the last decade. While there is no precise way to gauge the importance of these loans, it is fairly clear that they have been used to compensate for a number of the structural problems in the economies of East European states, particularly Poland, as well as to fund much of the technology transfer from East to West.

Accordingly, although Table One shows that the U.S. accounts for only a comparatively small portion of all East-West trade, Tables Two and Three indicate the U.S. has important leverage the Soviet Bloc through its grain exports and the East's need for capital and hard currency.

TABLE THREE

SOVIET BLOC DEPENDENCE ON WESTERN LOANS & CREDITS (Millions U.S. Dollars)

	1971	1972	1973	1974	1975	1976	1977	1978	1979
A. SOVIET UNION									
1. Annual Borrowing		602	1340	1427	5402	4275	929	1445	-27
2. Cumulative Debt	1807	2409	3749	5176	10578	14853	15782	17227	17200
3. Annual Service Payments		476	729	1133	1773	2398	3115	4121	4754
B. NSWD									
1. Bulgaria									
a. Annual Borrowing		266	11	683	937	558	509	556	237
b. Cumulative Debt	743	1009	1020	1703	2640	3198	3707	4263	4500
c. Annual Service Payments		182	217	307	313	414	572	725	885
2. Czechoslovakia									
a. Annual Borrowing		145	127	291	84	730	754	590	814
b. Cumulative Debt	485	630	757	1048	1132	1862	2616	3206	4020
c. Annual Service Payments		134	202	291	324	356	458	641	785
3. GDR									
a. Annual Borrowing		146	582	1000	2052	668	1289	1749	1246
b. Cumulative Debt	1408	1554	2136	3136	5188	5856	7145	8894	10140
c. Annual Service Payments		301	435	638	725	1058	1302	1838	2475
4. Hungary									
a. Annual Borrowing		321	50	687	1006	914	1606	1818	547
b. Cumulative Debt	1071	1392	1442	2129	3135	4049	5655	7473	8020
c. Annual Service Payments		140	224	322	324	402	548	911	1236
5. Poland									
a. Annual Borrowing		426	1232	1847	3371	3469	2484	3877	3256
b. Cumulative Debt	1138	1564	2796	4643	8014	11483	13967	17844	21100
c. Annual Service Payments		274	487	903	1219	1868	2887	4336	5800
6. Romania									
a. Annual Borrowing		22	362	1082	231	-21	702	1616	1729
b. Cumulative Debt	1227	1249	1611	2693	2924	2903	3605	5221	6950
c. Annual Service Payments		337	447	607	667	594	699	879	11174
7. Total NSWP									
a. Annual Borrowing		1326	2364	5590	7681	6318	7344	10206	7829
b. Cumulative Debt	6072	7398	9762	15352	23033	29151	36695	46981	54730
c. Annual Service Payments		1844	2012	3068	3622	4692	6466	9330	12355
8. Total FACT									
a. Annual Borrowing		1928	3704	7017	13083	10593	8273	11651	7802
b. Cumulative Debt	7879	9807	13511	20528	33611	44204	52477	64128	71930
c. Annual Service Payments		2320	2741	4201	5395	7090	9581	13451	17109

Note: Cumulative Debt = Gross Debt
Service Payments = Principal Repayment + Interest
Annual Borrowing = Gross Debt$_2$ - Gross Debt$_1$

SOURCE: Adapted from: NFAC
Estimating Soviet and East European
Hard Currency Debt

1. Grain Exports and Grain Embargoes

U.S. leverage over the Soviet Bloc is clearest in the case of grain exports. Unclassified data are not yet available from CIA to describe the impact of the U.S. grain embarge in the detail shown in Table Two. However, Department of Commerce data on total Soviet bloc and Soviet agricultural imports from the U.S. give a rough picture of the embargo's impact. Total Soviet bloc agricultural imports from the U.S. rose to $ 2.7 billion in 1978, and $ 4.6 billion in 1979, before the grain embargo. Soviet imports alone rose from $1.7 billion in 1978 to $2.9 billion in 1979. Although the grain embargo described in Table Two led to only minor reductions in agricultural imports from the U.S. by other Soviet bloc nations in 1980, they cut Soviet agricultural imports from $2.9 billion in 1979 to $1.0 billion in 1980.[6]

These data are supported by recent figures on actual grain flows to the U.S.S.R. While the U.S. grain embargo was only partially effective, and Soviet grain imports rose from about 20 million metric tons in 1979 to roughly 28 million metric tons in 1980, the U.S.S.R. still received only about half the total increase in grain imports that it sought for 1980, and had to pay a significantly higher price in hard currency for what it did get than it would have paid the United States. As a result, the U.S.S.R. is almost certain to have to make major cuts in its 1981 meat and dairy production, and may have to reduce its imports of industrial goods to provide the hard currency needed for agriculture.[7]

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6 See Appendix A for details.
7 New York Times, 26 April, 1981.

It also seems likely that if the U.S. embargo had continued, the Soviet situation would have been even worse in 1981. The Soviet grain crop in 1980 again fell far below Soviet goals, and Soviet demand for grain continued to increase. As a result, the Soviet demand for grain imports in 1981 may go up another 6-8 million tons over the level of 33-35 million tons which the U.S.S.R. set as its desired goal in 1980.[8] It seems unlikely that Canada, Australia, Argentina, the EEC, and other countries could have made up this difference in 1981, and if the embargo had persisted the end result might well have been to so cripple Soviet livestock production as to force a new category of agricultural imports on the U.S.S.R. Even with the U.S. embargo lifted, it may still take three to five years for Soviet agriculture to recover.

This form of U.S. leverage over the U.S.S.R. seems almost certain to continue through the 1980s. Even Soviet sources provide no indication that the U.S.S.R. could reduce its dependence on outside grain imports unless major changes took place in recent weather patterns. There is no evidence of economic reform or structural change in Soviet agriculture that would solve the long standing Soviet problem in productivity and efficient distribution, and the data in Appendix A show that other Soviet bloc nations are similiarly dependent on the U.S.

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8 Based on USDA working data, Washington Post 30 January 1981 and 5 February 1981, Los Angeles Times, 30 January 1980, and transcript of President Carter's press conference, undated.

2. Capital Imports and Borrowing

The U.S. also seems to have considerable potential leverage over the Soviet bloc because of its dependence on Western capital. The current crisis in Poland is likely to lead to major new Soviet bloc capital imports, and this demand will be reinforced by the rising cost of East European oil imports, and East European inability to finance these imports from hard currency earnings.

While it is impossible to predict the scope of this increase, and the growth of Eastern Europe's need for capital imports may temporarily be limited because of the current oil "glut," there are strong indications that the Soviet bloc faces a situation where it must steadily increase its borrowing each year in the 1980s with little real chance of repaying the cumulative debt it built up in the 1970s. In fact, it seems likely that East Europe will follow the pattern of many developing countries, and have increasing trouble even in funding its annual debt service payments.

The recent erosion of the West European lending position indicates that the Soviet bloc will have to turn directly or indirectly to the U.S. for a considerable portion of this capital. Accordingly, a U.S. embargo on new loans, re-scheduling, and various load guarantee or reinsurance arrangements might have considerable impact.

3. Transfer of Oil and Gas Development and Production Equipment

The U.S. may have strategic leverage in an area which is more difficult to quantify. The CIA has recently revised its approach to estimating future Soviet oil productions to adopt the techniques advocated by the DIA. It has shifted from projections based on past Soviet production to reserve ratios to projections of future Soviet production based on Soviet drilling activity and deployment of new exploration and development equipment. This has led the CIA to agree that the U.S.S.R. is unlikely to become a major oil importer in the mid-1980s, and to raise its estimate of Soviet oil production in 1985 from 8-10.5 MMBD to 10-11 MMBD. CIA's acceptance of DIA's long standing estimates also indicates, however, that the U.S.S.R. will be much more dependent on getting the latest oil and gas technology.[9]

Soviet imports of oil and gas technology from the U.S. seem to have totalled about $800 million since 1972, or roughly 15-33% of all known Soviet imports of oil and gas equipment. They have included pipeline equipment and technology, submersible oil pumps, refining and offshore equipment, and a wide range of software. While the sources involved differ sharply over the exact value of these transfers and their impact, it seems likely that they have played a significant role in preventing a Soviet oil crisis, and that further exports of much more sensitive and complex technology will be required during the 1980s.[10/11]

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9 Washington Post, 20 May 1981, and New York Times, 19 May 1981.
10 OTA, "Technology and East-West Trade," GPO, 1979, pp. 238-240.
11 The Carter Administration rejected a key Soviet request to purchase a $144 million drill bit manufacturing plant and computer controlled beam welding capabilities from Dressler industries in November, 1980, after two years of debate. Neither it or the Reagan Administration, however, have been able to get a conclusive analysis of U.S. technical leverage over Soviet oil and gas exploration and development.

4. Computers and Data Processing

The U.S. has always had a major lead in advanced computers, and this is one of the few areas where the U.S. has succeeded in controlling the export of critical technologies. The U.S. may have similar leverage in "low technology" computer and data processing equipment. Although the data in this area are even more uncertain than those on oil and gas development and production equipment exports, the limited data available indicate that the U.S.S.R. is getting about one-third of its total imports of such equipment directly from the U.S. and a substantial additional amount of additional equipment from the U.S. through various third parties.

While it is unlikely that such imports have exceeded $80-100 million since 1972, they offer the U.S.S.R. low cost aid in an area where it is steadily falling behind the West.[12] A total U.S. cut off of such equipment, even without allied support, might have considerable impact on the efficiency of the Soviet planning and management process during the 1980s. It is certainly an area that merits further study.[13]

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12 Rough estimate based on OTA, Dept. of Commerce, and IRD data.

13 For a good discussion of the uncertainties involved, see Seymour E. Goodman, "Soviet Computing and Technology Transfer," World Politics, July, 1979.

C. CHANGING PATTERNS IN THE STRUCTURE OF EAST-WEST TRADE

There are several factors, however, which may act to sharply reduce the strategic leverage the U.S. and its allies can exert over the Soviet bloc through the use of East-West trade by the mid-1980s. First, it is becoming increasingly clear that whether or not the Soviet Union will become a major oil importer in the 1980s, its allies will steadily increase their need to compete with the West for energy and critical mineral imports. Second, the U.S.S.R. is now taking steps which could make West Europe dependent on the U.S.S.R. for gas exports. And third, the U.S.S.R. is shifting its trade patterns to use trade as a "weapon" in its struggle for global power.

1. Soviet Bloc Oil Imports

Recent trends in East European oil imports are shown in Table Four. These data indicate that although East European countries are reducing the rate of growth in their oil imports, and that the U.S.S.R. has increased its oil exports to East Europe, the East European nations face a relatively grim near term energy future.

New discoveries and oil production in East Europe are dropping, the U.S.S.R. is charging increasingly higher prices for its exports, and the approximate cost of total East European

TABLE FOUR

PATTERNS IN EAST EUROPEAN OIL IMPORTS: 1971-1978 (Thousand B/D)[1]

YEAR		TOTAL OIL CONSUMPTION	OIL IMPORTS	OIL IMPORTS AS A PERCENT OF TOTAL	OIL IMPORTS FROM THE USSR	OIL IMPORTS FROM THE USSR AS A PERCENT CONSUMPTION	OIL IMPORTS FROM NON COMMUNIST	OIL IMPORTS FROM NON COMMUNIST STATES AS OF TOTAL CONSUMPTION	AVERAGE OPEC PRICE PER BARREL	EQUIVALENT COST OF E. EUROPEAN OIL IMPORTS FROM NON STATES AT OPEC PRICE ($ Million)
1971[2]		1217	870	71	895	74	-25	-20	$ 3.01[4]	$ -27
1972		1361	1008	74	975	72	33	2.4	$ 3.01[4]	$ 36
1973		1539	1183	77	1100	71	83	5.4	$ 5.11[4]	$ 155
1974	$11.15	1559	1197	77	1180	76	17	1.0	$11.15	$ 69
1975	$12.08	1676	1323	79	1269	75	63	3.8	$12.08	$ 278
1976	$12.87	1801	1435	80	1370	76	65	3.6	$12.87	$ 305
1977	$12.88	1943	1579	81	1420	73	159	8.2	$12.88	$ 747
1978	$12.93	2063	1718	83	1490	72	228	11.0	$12.93	$1076
1979	$18.67	2125	1890	89	1559	73	235	11.0	$18.67	$1601[3]

[1] Adapted from CIA ER IESR 81-004 (U), 28 April, 1981 pp. 25, 27, and 28, and DOE International Energy Indicators. Excludes Yugoslavia.

[2] There is a discrepancy in data involving Oil Imports and Oil Imports From the U.S.S.R.

[3] If East European oil imports from non-Communist countries were maintained at the 1979 levels, the import cost would be $2.6 billion in 1980, and $3.0 billion plus in 1981.

[4] Estimated from OPEC price data.

hard currency oil imports from Non-Communist nations rose from less than $100 million in 1974, to a minimum of $1.6 billion in 1979, and have since risen to well over $3 billion. While East Europe is able to slightly reduce its hard currency needs through barter arrangements, and can reduce its future rate of oil imports growth by conservation and the use of coal, it is unlikely to avoid a steady real increase in energy imports, in its need for hard currency to pay for energy imports, and in its competition with the West for oil supplies.

Further, although the most recent CIA estimates do not indicate that the U.S.S.R. will be a major oil importer in the mid-1980s, the revised CIA estimate is dependent on the Soviet Union being willing to pay an extremely high price in terms of conservation and efforts to maintain its production levels, and on sharply limiting its present 1.5 MMBD exports to East Europe. Accordingly, even without major Soviet oil imports, the Soviet bloc as a whole will have an "energy crisis" in terms of the strain put on its economy, and a strong overall incentive to seek energy imports as a substitute for the economic cost of any effort to rely on the current level of bloc energy supplies.

And finally, oil imports are only part of the reason the Soviet bloc may soon have to increase its competition with the West for oil imports and other strategic materials. The U.S.S.R.

curtailed or altered its release of mineral production data in 1976, and has not published useful data on most key minerals since. As a result, CIA estimates of Soviet mineral imports are highly uncertain and do not allow a precise breakdown between imports from the free world and total imports. It is still clear, however, that the U.S.S.R. is now dependent on imports of six strategic commodities and seven strategic minerals from outside the Soviet bloc. These include tin, flourine, antimony, tungsten, bauxite, and alumina.[14] Soviet mineral production also exceeded its share of reserves in ten strategic minerals in the late 1970s, including high grade bauxite, chromium, copper, diamonds, fluorspar, nickel, phosphates, tin, and zinc.[15] Further, the U.S.S.R. also stockpiled cobalt, copper, zinc, aluminium, and molybdenum and stopped allowing exports of titanium, during 1978-1980. While the U.S.S.R. is believed to be "self sufficient" in many of these items, this applies only to civil needs and a relatively low level of military demand. Given its steady increases in defense production it may actually have been dependent on imports of all these materials for half a decade.

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14 NYT 6 Feb. 1980, p. 11; DOD, Program for RD&A, FY 1982, p. I-29 and H.A.S.C., No. 96-69, Capability of the U.S. Industrial Base, 96th Congress, December, 1980, pp. 554-555.

15 Bohdan O. Szuprowicz, How to Avoid Strategic Mineral Shortages, Wiley-Interscience, N.Y., 1980, pp. 68-70.

While such Soviet dependence does not approach U.S. dependence on imports of some 20-37 strategic minerals, it seems to be increasingly important and likely to grow more important. Further, the need for new sources of mineral imports seems likely to be even more characteristic of East Europe. Eastern Europe's total 1979 imports of fuels, minerals, and metals from all sources were worth well in excess of $10 billion, and mineral imports have shown a steady real growth since 1969.[16/17]

2. The East-West Pipeline

At the same time, the U.S.S.R. may be able to compensate for much of its present trade vulnerability in the near future. The U.S.S.R. has long sold oil and gas to Western Europe. This trade was equal to $4.5 billion in 1978, and probably exceeded $6 billion in 1980. The importance of such sales is symbolized by the fact that Soviet sales of crude oil and petroleum products are now more than 50% of all Soviet exports to West Germany. Given East European energy needs, and current estimates of Soviet oil production, the U.S.S.R. will probably have to severely cut its petroleum exports to Western Europe by the mid-1980s.

Yet, NATO's dependence on Soviet energy may still increase massively over this same period. West Europe is now considering financing the construction of a 5,000 KM gas pipeline from

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16 Estimate based on CIA ER 80-10452, p. 98.

17 Some analysts also speculate that the U.S.S.R. has been manipulating its purchases and sales of critical minerals like cobalt, chromite, and titanium since the mid-1970s to build up its own stocks and deny supplies to the West. See Lindstrom and Bryan, "Strategic Economic Policy," National Defense, March and April, 1981; Daniel I. Fine, "Mineral Resource Dependency Crisis," World Affairs Council of Pittsburgh, p. 46; and various articles by Donald E. Fink and Richard O. Leone in Aviation Week, May 5th 1980, pp. 42-56 and p. 62-63.

West Siberia to West Germany. This pipeline would take four to seven years to complete, once full agreement was reached between the U.S.S.R. and Western Europe, but by 1990, it could substantially reverse the patterns of dependence in East-West trade. If it is successful in meeting its planned capacity, West Germany would be dependent upon the U.S.S.R. for up to 30% of its gas and 6% of its total energy supplies. French dependence would equal 25-30% of its total gas supplies and 4% of its total energy. The dependence of other West European countries as a percent of their total energy supplies would be as high as 18% for Austria, 8% for Belgium, 5% for Italy, and 4% for the Netherlands.[18]

While gas stockpiles and North Sea gas might help reduce Europe's vulnerability to such dependence, there is little doubt that the pipeline would give the U.S.S.R. a powerful counter to any U.S. or Western restrictions on the export of grain and technology. Further, long before the pipeline started major gas transmission, the West would have to provide at least $10-15 billion in hard currency loans, and perhaps as much as $20-30 billion, given past cost escalation in similar U.S. projects.[19] As a result, the U.S.S.R. will "mortgage" the West to the pipeline before it delivers such gas, and there is little leverage the U.S. can apply in terms of gas pipeline technology or equipment.

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18 DOE working estimates.

19 See Robert J. Samuelson, Washington Post, 2 December 1980, p. D-6 for base estimates in 1979 dollars, and NYT and WP articles of 16 May 1981 for discussions of cost escalation in the Alaska Gas pipeline.

The ongoing economic advantages to the U.S.S.R. would be vast. Hard currency earnings would be on the order of $15-22 billions annually, and the revenues from the Western financed pipeline would be large enough to allow the U.S.S.R. to pay for most of its imports from the West after the mid-1980s even if it ceased to export oil. The East-West gas pipeline would also substantially reduce the energy import burden on Eastern Europe by the late 1980s, and help to increase East European dependence on the U.S.S.R. at Western expense. Accordingly, the East-West gas pipeline may lead to a shift in the pattern of East-West trade which could largely eliminate Western ability to put unified economic leverage on the U.S.S.R. after the mid 1980s, and allow the U.S.S.R. to add economic pressure to its vast military strength in pressuring Western Europe.

3. Arms Exports

Economics, however, are only part of the shifts in East-West trade which are weakening the West's strategic position. There are other shifts which will allow the U.S.S.R. to use East-West trade as a "weapon" in its politico-military struggle with the West, and which can scarcely be associated with "detente." Table Five traces the growth of the Soviet Union as an arms exporter whose arms trade rose in value in constant 1977 dollars from a dollar equivilent of $1.8 billion in 1969, to a dollar equivilent of $7.1 billion in 1978. Further, although more recent CIA data indicate that Soviet military exports dipped

TABLE FIVE

PATTERNS IN U.S. AND SOVIET ARMS TRANSFERS: 1969-1978

	ARMS EXPORTS (Constant US 1977 Dollars-Millions)			ARMS EXPORTS AS A % OF TOTAL EXPORTS	
	U.S.	U.S.S.R.	U.S. as % of U.S.S.R	U.S.	U.S.S.R.
1969	5685	1786	318.3	9.2	9.4
1970	4788	2317	206.6	7.2	11.7
1971	4997	2351	212.5	7.7	11.6
1972	5787	4093	141.4	8.2	18.8
1973	6542	7076	92.5	6.9	24.8
1974	5489	5001	109.8	4.6	15.0
1975	5233	4453	117.5	4.4	12.0
1976	6242	5607	111.3	5.7	14.2
1977	6900	6500	106.1	5.7	14.4
1978	6237	7100	87.8	4.7	13.5
TOTAL	57900	46284		6.4[1]	14.5[1]

Source: World Military Expenditures and Arms Transfers, 1969-78, USACDA, Table III.

[1] Averages

in 1979, they almost certainly exceeded $10 billion in constant 1977 dollars in 1980, and will probably exceed $14 billion in 1981.

While such dollar equivalent estimates are necessarily rough, the ACDA estimates, from which Table Five is drawn are almost certainly correct in showing that Soviet arms sales have become a steadily more important part of East-West trade. Further, Table Five, sharply underestimates the true importance of this growth because the early years show Soviet arms exports as a percentage of total Soviet exports in terms of CIA's estimate of the total dollar equivalent value of Soviet arms rather than in terms of the actual price the Soviets charged.

Since SIPRI and CIA sources agree that the U.S.S.R. converted from heavily subsidized arms exports to something closer to Western market prices in the mid to late 1970s, the true growth in Soviet arms exports as a percent of total Soviet world trade during 1969 to 1978 was not from about 9% to 15%, but rather from about 3% to 19% in terms of actual earnings in hard currency equivalent. Further recent CIA and press reports indicate it will probably rise to over 20% by 1981. To put this in perspective, U.S. arms exports as a percent of total U.S. exports dropped from 9% in 1969 to 5 % in 1978. The U.S. share of total world arms exports also dropped from 60% in 1969 to 33 % in 1978, while the Soviet share rose from 19 % in 1969 to 35 % in 1978.[20]

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20 Estimate based on SIPRI yearbooks for 1979 and 1980, and ACDA, World Military Expenditures and Arms Transfers, 1969-1978.

It seems almost certain--given the immense political, economic, and military advantages the U.S.S.R. draws from the arms trade--that it will seek to increase its "market share" of world arms transfers even more in the 1980s. This raises some interesting questions about the true impact of East-West trade on "detente." The Soviet Union seems to be paying for many of its imports from the West by increasing its arms exports to the developing nations and its competition with the West.

These same trends emerge for many of the East European nations, and it is hard to avoid the conclusion that many of the effects of the Soviet bloc need for hard currency are contributing to a massive Soviet push to increase its military advisory effort in the developing world. It also seems clear that one major side effect of any transfer of military technology to the U.S.S.R. will be to increase Soviet competitiveness and reduce Western arms sales.

4. The Soviet "Merchant" Fleet and "Aeroflot"

This same Soviet use of East-West trade to support its military competition with the West emerges in the case of the Soviet merchant fleet and Aeroflot. The Soviet Union has heavily subsidized its merchant fleet since World War II and

TABLE SIX

U.S. AND SOVIET MERCHANT FLEETS[1]
(TONNAGE IN THOUSANDS)

	SOVIET[4]	UNITED STATES[2]			
		TOTAL	PRIVATELY[3] OWNED	GOVERNMENT OWNED ACTIVE[5]	RESERVE
1. Total					
a. Number	2512	865	569	41	255
b. Gross Tons	16333	15564	12967	413	2183
c. Dwt Tons	21590	23589	20540	472	2577
2. Combination Passenger and Cargo					
a. Number	58	68	8	8	56
b. Gross Tons	451	743	74	72	596
c. Dwt Tons	139	461	50	48	364
3. Freighters					
a. Number	1828	469	257	33	179
b. Gross Tons	8969	5763	4039	327	1397
c. Dwt Tons	10969	6723	4406	404	1912
4. Bulk Carriers					
a. Number	156	21	21		
b. Gross Tons	2028	355	355		
c. Dwt Tons	3106	621	621		
5. Tankers					
a. Number	470	397	285	2	20
b. Gross Tons	4886	6703	8499	14	190
c. Dwt Tons	7349	15784	15462	21	301

1 Excludes ships operating on the Great Lakes and inland waterways, and special types such as channel ships, icebreakers, cable ships, etc. and merchant ships owned by any military force

2 Excludes 59 non-merchant type and/or Navy-owned vessels which are currently in the National Defense Reserve Fleet

3 Includes 8 integrated Tug/Barge Combination vessels

4 Source material limited

5 Comprised of vessels under general agency agreement, and in the custody of the Departments of Defense, State and Interior

SOURCE: U.S. Department of Commerce, Maritime Administration, Office of Trade Studies and Statistics, Division of Statistics

has underpriced its cargo costs to steadily displace Western shipping. As a result, the Soviet merchant marine grew from 400 ships of about 2 million tons in 1946 to 1,700 ships of over 16 million tons in the late 1970s, and 2,500 ships and 20 million tons by early 1980. The current capabilities of the Soviet Merchant Marine are shown in Table Six. To put these numbers in perspective, the U.S.S.R. is now first in number of freighters in the world and 6th in cargo carrying capability, while the U.S. has slipped to a distant tenth.[21]

The growth of the Soviet merchant fleet has occurred at the expense of both Western shipping and Western control over cargo shipping patterns. It vastly complicates the problem of anti-submarine warfare since the growing Western use of Soviet carriers sharply limits NATO's control over its own normal cargo movements, and reduces the pool of cargo ships NATO can use to supply Europe in a war.[22] Further, the entire Soviet "civil" fleet is assigned military missions. The Soviet cargo fleet regularly participates in Soviet exercises, and can carry as much as 6 fully equipped Soviet motorized rifle divisions. Its Sculptor-Komenov class ships (4 in service and more building) are roll-onroll off ships which can carry 270 tanks below deck and 890 tanks on deck.

Its civil tankers regularly stop at Palermo and then fuel the Soviet Mediterranean Squadron. Roughly 10-15% of its fishing trawlers in Atlantic waters are continuously engaged

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21 Alexander Scott, "Economic Warfare," Armed Forces Journal International, March, 1980, pp. 67-69.

22 This process was greatly aided by an October, 1972 agreement that allowed the U.S.S.R. to call at 40 designated ports and included a non-discrimination clause. Some of the subsidy aspects of Soviet trade are discussed in Joint Economic Committee, "Issues in East-West Relations, Chapters 17 and 18, 12 January 1979.

in intelligence missions. Virtually the entire Soviet fishing fleet exercises a dual role in mine-laying, and the U.S.S.R. has the largest stocks of mines in the world. The Soviet oceanographic fleet now has approximately 200 ships, more than the rest of the world combined, and actively supports Soviet SIGINT and ASW efforts. In fact, the intelligence role of the Soviet merchant fleet is so great that a special section of the KGB exists just to handle the resulting intelligence product.[23]

Similarly, Aeroflot is only titularly a civil airline. In a recent article in the Armed Forces Journal,[24] Ralph Ostrich traces Aeroflot's close ties to the Soviet military, its use in intelligence roles, its dual use as a military carrier, and the extent to which its route structure has been used as a heavily-subsidized form of power projection. Although Aeroflot carries 15% of all passengers worldwide, passenger and freight revenues fall far behind its market share. Aeroflot is closely related to the SVTA, the Soviet military airlift command. Although it is ostensibly under the administration of the Soviet Ministry of Civil Aviation, Aeroflot remains under the ultimate direction of a Soviet Air Force Marshal, and the majority of Aeroflot's 400,000-500,000 employees are either in the active reserves or have had some kind of military experience. Most of Aeroflot's 20,000 to 25,000 pilots could be switched over to military transport missions with relative ease.

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23 See Armed Forces Journal, May, 1981, pp. 38-60.
24 Ibid.

It is estimated that applicable aircraft in Aeroflot's inventory could augment Soviet airlift potential by some 39%. This includes the ability to airlift an additional Soviet airborne division concurrent with the two others simultaneously transported by military airlift. Alternatively, it provides the ability to air lift an additional 56,000 troops, or the personnel of two Soviet motorized rifle divisions.

While the U.S. and some other Western nations also give their civil airlines a military reserve role, the Soviet Union does far more. It maintains the same kind of tight controls over Aeroflot that Nazi Germany exercised over Lufthansa in the period before World War II, and the total lack of economic rationale behind its route expansion and flight schedule is matched only by its direct historical correlation with Soviet interests in supporting revolutionary movements, penetrating into strategic areas, and servicing its client states like Cuba and South Yemen.

As a result, the U.S.S.R. has already built up a massive troop carrying and paratroop lift capability, and is clearly using its civil airline as a means of improving its ability to reinforce fronts like Eastern Europe and to develop the ability to rapidly deploy forces into areas like the Gulf. In return, it has systematically denied Western airlines the over flight, routing, and service rights it has obtained in the West, and forced them to operate under conditions in the Soviet bloc which prevent them from competing effectively with Soviet bloc airlines.

5. Soviet Use of Industrial Espionage and Scientific and Educational Exchanges

The Soviet use of East-West trade for intelligence purposes goes much further than Aeroflot. It permeates every Soviet "commercial" operation in the West, and virtually every Soviet contact with Westerners in the Soviet bloc. At times it is so intense that it seems almost ludicrous. A visiting team of experts from the Soviet aviation industry wore specially rigged shoes during a tour of the McDonnel-Douglas and Boeing plants building wide-bodied aircraft. These shoes allowed the delegation to gather metal scraps so they could copy the metals technology being used in such aircraft. KGB executives at the Soviet trade consulate in San Francisco have specialized in the semiconductor technology activity in "silicon valley" to the point where they have causes a serious price inflation in local industrial espionage efforts.[25]

The combined Soviet effort to purchase and "acquire" U.S. computer technology reached the point where various generations of the Soviet Ryad computers closely paralleled IBM's 360, 370, and E Series. The Soviets even built dummy or "Potemkin" computers in an effort to convince the West it already had key computer technologies, and U.S. sales would not give it major new technological advances.[26] In fact, the intelligence

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25 An excellent description of this Soviet effort is provided in a series of articles by James Coates in the Chicago Tribune, April 12, 13, and 14th, 1981.

26 de Borchgrave and Ledeen "Selling Russia the Rope," New Republic, 13 December, 1980, pp. 13-16.

function of a Soviet commercial center near the NATO Headquarters outside Brussels is so obvious that although it is supposed to be a wholesale distributor of trucks, it is one of the few buildings in the world with an roof mounted antenna complex that comes close to matching the Pentagon's.

Other Soviet and Soviet bloc agents a make a full time job of acquiring or stealing work done by U.S. contract research firms, defense consultants, and by U.S. firms. For example, a Hughes Aircraft Company engineer was recently offered $100,000 a year "in gold" by Polish intelligence agents to copy studies like the "Low Probability of Intercept Radar Phase I, Final Reports," and "Covert All Weather Gun Systems."[27]

The overall results of such Soviet bloc efforts are quite serious. The U.S.S.R. now orchestrates the visits of about 1,000 Soviet and 6,000 Eastern European businessmen a year to the U.S., and most of these visits have a heavy technology transfer or intelligence component. It is conducting even larger technical intelligence efforts in Western Europe and East Asia, and is buying "fronts" in Asia and Europe to use in third party transfers from the U.S. and other Western Countries. It recently has attempted to buy a "silicon valley" bank through a Hong Kong "cut out" to get leverage over the U.S. semi-conducter industry, and seems to have used third party transactions in

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27 Washington Post, June 30, 1981, p. 4-5.

France to obtain some of the technology it used in fabricating the hulls of the new Soviet Typhoon and Alpha class Submarines. Commercially based Soviet intelligence operations in Iran may also have been used in acquiring the key technology used in the AIM-54A or Phoenix missile that gives the F-14 its long range kill capability, which forced the design of an AIM-54C variant to protect against loss of the technology.[28]

The U.S.S.R. is also clearly using its "educational" and "scientific" exchanges with the West to obtain military technology, and to try to "leapfrog" its remaining technology gaps. Still classified analyses of the student and scientific exchanges between the U.S.S.R. and U.S. show that these are other heavily targeted on areas which have no major scientific value or civil applications but which are of major importance in defense technology.

Such exchanges were recently used in Soviet efforts to acquire critical technologies like computer "bubble memories" and a wide range of laser technologies suited for space warfare. Such operations were a major reason that the Carter Administrations tried to cut back scientific and education exchanges with the U.S.S.R. after the invasion of Afghanistan.[9/30] This

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28 San Diego Union, 14 November, 1980, p. A-12.

29 Washington Post, 20 February 1980, p. 1; New York News, 22 February, 1980, p.4; Baltimore Sun, 22 February, 1980, p. 1.

30 Z. Brzezinski, "Foreign Participation in Privately Sponsored Scientific Conferences in the U.S." (U), The White House, No. 5689, 4 November, 1980.

officially led to a cut in the number of exchanges from the U.S.S.R. to the U.S. from 737 in 1979, to 323 in 1980, and 64 in the first quarter of 1981. Such exchanges are now projected to reach only 70-72 in the second quarter of 1981, or about 280 for the year. Such cuts were matched by a cut in U.S. exchanges to the U.S.S.R. These dropped 813 in 1979, to 266 in 1980, and 17 in the first quarter of 1981.

In reality, however the U.S.S.R. responded by converting many of its scientific exchanges to B-1 (business) and B-2 (tourist) visas. As a result the U.S.S.R. actually increased its number of scientific and technical exchanges, while targeting them more heavily on defense applications. The Soviets took advantage of the loop holes in the U.S. visa and counter-intelligence system to use business and tourist visas to increase their R&D collection effort, and the end result of the weaknesses i.e. U.S. trade controls is that U.S. exchanges to the U.S.S.R.--which are fully controlled by the U.S.S.R.--are now running at less than one eighth of the Soviet level.[31]

Such activity is also only a small part of the total Soviet effort to use East-West trade for intelligence purposes. The Soviet bloc devotes something like 10-15% of its commercial contacts with the West to intelligence purposes, orders and analyzes of each of the 80,000 odd technical reports deposited

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31 Confirmation testimony of Assistant Secretary of Commerce, for Trade Relations Lawerence J. Brady, 4 June, 1981 and letter from Ronald A. Harms, Office of Soviet Union Affairs, Department of State, June 30, 1981.

at the Department of Commerce each year, and may well have a larger staff to examine U.S. patents that the U.S. Patent Office. This Soviet effort has become so permeating in fact, that the Reagan Administration is now considering ways to release the details of Soviet bloc operations in the U.S. and the West even at the cost of potentially jeapordizing some aspects of U.S. counter-intelligence operations.[32]

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32 Ibid, Wilson Center Dialogue on "What Limits Should National Security Place on East-West Trade?" 3 June 1981.

D. THE IMPLICATIONS OF THE GROWTH OF EAST-WEST TRADE AND CHANGES IN EAST-WEST TRADE PATTERNS

While there are many other ramifications of the overall patterns in East-West trade for U.S. security--for example the ties between the Soviet bloc military assistance effort and efforts to control Western sources of strategic minerals in sub-Saharan Africa--these examples seem sufficient to illustrate the importance and complexity of the issue. They also indicate that regardless of the uncertain balance of "pros" and "cons" of East-West trade in terms of economics and detente, there is a clear need for coordinated U.S. policy towards all its major aspects, for better analysis and forecasting of its impacts, and for detailed and continuing study of its strategic impact on Western security.

It is unfortunate, therefore, that the Office of Strategic Trade that Senator Garn proposes in Senate bill S.2606 would deal only with technology transfer. This seems a grave ommission, given the recent history of U.S. debates over the most favored nation issue, the grain issue and future Soviet needs for oil imports, and the uncertainties surrounding U.S. policy towards the East-West gas pipeline, and loans to Eastern Europe. There seems to be a clear need for single high-level office that will coordinate U.S. policy in <u>all</u> key areas of East-West trade, and particularly for one which will conduct a continuing and integrated assessment of its affects.

While agencies such as INR, OTA, CIA, DIA, the Congressional Research Service, the Joint Economic Committee, the Department of Commerce, and other elements of the U.S. Government have conducted important studies of individual aspects of East-West trade, at least part of the reason that so many gaps exist in current U.S. policies and forecasts is that this research effort is so splintered and episodic.

E. THE CHANGING ENVIRONMENT FOR TECHNOLOGY TRANSFER

Like the general case for or against East-West trade, the conventional case for or against technology transfer results in a rough balance of "pros" and "cons."

- The case for technology transfer involves different mixes of elements depending on the proponent. However, it usually includes a mix of the the following arguments: (a) the U.S.S.R. has a great need for such transfer and it will do more than any other form of East-West transfer to build interdependence and Soviet motives for good relations with the West; (b) technology transfers can be delayed or made more costly but not really controlled; the West will gain more from putting such transfers on a sound economic basis than from an ineffective process of harrassment; (c) the Soviet covert effort to by pass such controls will always be more efficient than the controls; (d) technology transfer promotes far broader contacts with Soviet managers and intelligentsia than other forms of East-West trade and does the most to promote mutual understanding; (e) no Western consensus can be developed around effective controls and foreign substitutes or near substitutes exist to most U.S. items, for U.S. controls on technology

transfer will simply drive the U.S.S.R. to buy from non-U.S. markets; (f) as long as actual military equipment is not exported, the systems development and integration problems in adapting commercial Western technology to Soviet military needs will ensure a permanent lag in Soviet military technology; and (g) Soviet productivity and technology transfer rates lag behind the West so badly that the West will maintain its lead in military technology regardless of such transfers, if not actually increase it.

- The case against technology transfer also takes different forms, but usually involves a mix of the following arguments: (a) technology is the West's one major advantage over the U.S.S.R. and its only compensation for Soviet bloc superiority in military mass; (b) technology transfer does not lead to any real Soviet bloc interdependence with the West, but simply constitutes Soviet borrowing; (c) there would not be so large a covert Soviet effort to obtain technology if controls did not have a major impact; (d) few examples exist of the West getting anything approaching the true value of its transfers while many examples exist of the process "backfiring" against Western economic interests; (e) the Soviet Union has been very inefficient in borrowing applied technology wherever this has been controlled and the west has been able to preserve its lead in key

areas like jet engine technology for more than a quarter century; (f) Western technology controls tend to work when ever the U.S. attempts to achieve a real consensus and presents a firm case to its allies; (g) even inefficient or partial Western controls have significant effect because of the problems in Soviet absorption capability and (h) most non-U.S. "substitutes" turn out to be canards because the Soviet Union only presses its efforts to obtain U.S. technology when no substitutes are readily available, and because the U.S. has a major lead over the rest of the West in readily transferable high technology.

Once again, the studies done to support either viewpoint, and compare their merits, are so balanced in impact that they add up to a "bad case." Unless one takes an all or nothing position on technology transfer, or argues on a worst case basis, it is extremely difficult to justify one level of controls over another. This is particularly true when controls are applied to any given item or technology. A good case can virtually always be made for release or non-release, and almost any decision falls into a grey area.

1. The Limits to U.S. Leverage Over Technology Transfer

The U.S. has only limited unilateral leverage in terms of its ability to control this aspect of East-West trade.

A recent Department of Commerce analysis shows that in 1979:[33]

- o All communist countries together purchased only about 5-7% of Western high technology exports.
- o The share of high technology imports as a percentage of total communist imports has remained relatively constant at about 12.5%
- o The United States is only the fifth largest exporter of high technology goods to the U.S.S.R., and accounted for only 6.5% of Soviet imports of high technology goods although the U.S. provided 27.7% of all high technology exports by Western countries on a world wide basis. U.S. high technology exports to the U.S.S.R. were worth $155 million out of total Soviet imports of $2,371 million.
- o Only 4.3% of all U.S. exports to the U.S.S.R. are high technology goods and even when all communist countries are considered, U.S. high technology exports are only 6.3% of total exports, versus 18.8% of U.S. exports to the world
- o Further exports to the U.S.S.R. of manufactured goods totalled $657 million in 1979, out of total Soviet imports from the West of $13,642 million. The U.S. share of total Soviet imports of manufactured goods from the West remained nearly constant at 4% in 1970 to 5% in 1977, 4% in 1978, and 5% in 1979.

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33 John A. Martens, "Quantification of Western Exports of High Technology Products to Communist Countries," Staff Paper, Project D-41, International Trade Administration, Department of Commerce, January, 1981.

The details of U.S. high technology exports to Communist countries are shown in Table Seven,[34] along with the impact of goods requiring export licenses on total trade. However, the key to understanding the limits to U.S. leverage in this area is its small share of total Soviet imports of high technology goods from the Western industrialized nations. These trends are shown in Table Eight, and it is clear that nations like West Germany, Japan, France, and Italy are collectively more important in implementing this aspect of East-West trade policy than the United States.

This is of particular importance because such nations have a relatively relaxed policy towards the export of such goods. A recent OTA study notes that:[35]

> The CoCom nations' generally favorable stance regarding trade with and technology transfer to the East is reflected in the ease with which export licenses are granted. The export control systems employed by West Germany, France, Britain, and Japan all operate on the presumption that exports should be permitted in all cases except those involving items with clear and exclusive military value. A cooperative relationship between business and Government appears to exist in each of our allies' export control programs, making it possible for licenses to be granted swiftly and easily. In most cases, a time-consuming scrutiny by Government officials is not considered necessary before permission to export technology is granted.

This same OTA study showed that the other members of the Coordinating Committee for Multilateral Export Controls

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34 Details on licensing to the U.S.S.R. were not immediately available. This aspect of the Department of Commerce data base is now being revised to permit easier analysis. Telephone conversation with John A. Martens, 18 June, 1981.

35 Technology and East-West Trade, (Washington: Congress of the United States, Office of Technology Assessment, November 1979), p. 201.

TABLE SEVEN
PATTERNS IN U.S. EXPORTS OF HIGH TECHNOLOGY GOODS TO THE COMMUNIST WORLD

A. U.S. High-Technology Exports to the Communist Countries and to the World, 1978
(Millions of U.S. Dollars)

	Total Exports	Manuf. Exports	High-Tech. Exports	High-Tech.Expts as % of Total	High-Tech.Expts as % of Total
Cuba	0.3	0.3	0.1	33.3	33.3
P.R.C.	1716.5	653.2	107.6	6.3	16.5
Yugoslavia	406.5	361.9	130.7	32.2	36.1
Bulgaria	56.2	10.6	3.8	6.8	35.8
Czechoslovakia	281.1	30.9	9.0	3.2	29.1
G.D.R.	354.5	23.4	7.1	6.6	30.3
Hungary	77.6	52.6	9.7	12.5	18.4
Poland	786.3	105.0	27.5	3.5	26.2
Romania	500.5	102.7	42.7	8.5	41.6
U.S.S.R.	3604.1	656.6	154.7	4.3	23.6
Total Communist Countries	7794.3	1998.1	493.3	6.3	24.7
World	173644.8	117105.3	32700.8	18.8	27.9

B. Total Value of Approved Export Licenses and Total U.S. Exports to Communist Countries, 1975-1979
(Millions of U.S. Dollars)

Year	Value of Approved Export Licenses	Total U.S. Exports To Communist Countries
1975	219.4	3081.1
1976	237.4	3629.9
1977	233.9	2704.5
1978	457.9	4483.0
1979	765.1	7376.3
Total	1913.7	21274.8

Estimated Shipments under Approved Licenses	810.6
Estimated Shipments under approved licenses as percent of Total exports	3.8

SOURCE: Jonn A Martens, "Quantification of Western Exports of High Technology Products to Communist Countries," Staff Paper, 17 A, Project D-41, Department of Commerce, January, 1981.

(CoCom)[36] are often willing to release technology when the U.S. is not, and that the Soviet bloc has been able to exploit the fluctuations in the number and type of items on the CoCom list from year to year.[37] As a result, third party technology transfer has often been legally possible even when the U.S. appeared to have primary jurisdiction over an item and was actively attempting to block such transfer.

These limits on the leverage the U.S. can exert over technology transfer have sometimes been used to argue for the elimination of virtually all controls on the grounds that if the U.S. cannot enforce such controls, it should maximize its profits and market share in selling technology to the U.S.S.R. It has even been argued that if the U.S. succeeds in selling sufficient technology to the U.S.S.R., it can finance enough additional R & D to maintain its lead over the U.S.S.R. in military technology. A closer examination of the trends in U.S. and Soviet military technology does not, however, support this argument. It indicates that there is an urgent need for tight U.S. controls even if these have only limited effectiveness, and for renewed U.S. efforts to obtain the agreement of its allies to institute tighter controls of their own.

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[36] The Coordinating Committee began informal operations in 1948. It acquired formal status on 1 January 1950, with the U.S., U.K., France, Italy, the Netherlands, Belgium, and Luxembourg as members. Norway, Denmark, Canada, Japan, Greece, and Turkey had joined by 1953. Switzerland and Sweden consult with CoComm; Iceland, Finland, and Austria refuse to exchange information.

[37] The number of items on the CoCom list swings widely. It was 86 items in 1949, 285 in 1952, 118 in 1958, and has ranged about 1050 since 1964, although with substantial variations from year to year in the items included.

TABLE EIGHT

U.S.S.R. Sources of High Technology Products from the Western Industrialized Nations
(Millions of Dollars)

Source	1970		1972		1977		1979		
	High Tech. Exports To USSR	As Percent of Total	High Tech. Exports To USSR	As Percent of Total	High Tech. Exports To USSR	As Percent of Total	High Tech. Exports To USSR	As Percent of Total	As Percent of I.W. Country's Exports to USSR
Canada	0.2	--	0.7	0.2	7.2	0.3	11.3	0.5	1.7
U.S.A.	12.5	3.1	26.8	8.1	184.3	8.8	154.7	6.5	4.4
Japan	43.5	10.8	41.8	12.7	343.5	16.5	398.9	16.8	16.2
Bel-Lux	5.9	1.5	4.3	1.3.	18.6	0.9	21.1	0.9	4.5
Denmark	4.8	1.2	4.6	1.4	14.6	0.7	17.1	0.7	18.1
France	58.5	14.5	38.0	11.5	232.9	11.2	376.8	15.9	18.8
West Ger.	92.9	23.0	79.4	24.1	677.0	32.5	668.3	28.2	18.5
Ireland	--	--	--	--	1.2	0.1	1.3	0.1	2.9
Italy	69.6	17.3	51.1	15.5	233.1	10.7	257.2	10.8	21.1
Netherlands	1.1	0.3	3.2	1.0	19.1	0.9	16.7	0.7	5.5
U.K.	56.0	13.9	43.4	13.2	46.1	2.2	94.0	4.0	10.5
Austria	5.6	1.4	4.8	1.5	73.0	3.5	43.7	1.8	8.5
Finland	6.3	1.6	5.4	1.7	67.0	3.2	70.9	3.0	4.6
Norway	0.1	--	0.2	0.1	1.4	0.1	8.2	0.3	9.4
Sweden	22.3	5.5	9.0	2.7	76.6	3.7	119.9	5.1	35.3
Switzerland	23.66	5.9	16.3	5.0	99.8	4.8	111.3	4.7	41.9
Total	402.9	100.0	329.2	100.0	2085.4	100.1	2371.3	100.0	13.1

SOURCE: Adapted from John A. Martens, "Quantification of Western Exports of High Technology Products to Communist Countries, ITA, Project D-41, Dept. of Commerce, January, 1981

1. The Soviet Shift Towards "Maturity" in Military Technology

Several key aspects of the West's military position have changed fundamentally over the last ten years. The environment for technology transfer has changed from one of clear Western superiority to one of near parity, and the size of the U.S. effort in technology has changed from one of near parity with the Soviet Union to one of gross and growing inferiority that will not be significantly affected by the Reagan defense budget or similar increases during the last two years of the Carter Administration. Put differently, while the traditional "pros" and "cons" of technology transfer may remain as uncertain as ever, the potential cost of the West of being over-permissive has increased radically.

In 1970, the Soviet Union lagged in virtually every measure of military technology from strategic weapons down to light vehicles. It did not have a single successful attack fighter design, and its tanks had grossly inferior fire control. Its anti-tank guided missiles were primitive designs requiring long initial engagement ranges and complex dual sighting and control. Its air-to-air missiles, avionics, and aircraft guns were primitive by Western standards. It lacked modern lightly-armored vehicles, relied on towed artillery, had no modern helicopters in combat units, and had no modern communications and fire control systems in its land forces. The Soviet armed forces were technologically inferior in virtually every category.

While the exact status of Soviet military technology in 1980 is debatable, virtually all of the above defects either have been eliminated or have been compensated for. Further, as Table Nine shows, the U.S.S.R. has acquired parity or the lead in many critical areas of military technology, and the U.S. is losing its lead in most others. The estimates in Table Nine, also tend to understate the problem. They are based on recent DDR&E reporting which was drafted before the December Carter cuts in the FY 1982-FY 1986 budget, and before the full extent of the slippage in many key U.S. weapons and equipment programs became apparent. The Reagan program has so far failed to reverse most of these trends, and the shifts shown in Table Nine have since generally accelerated in favor of the U.S.S.R. As a result, the U.S.S.R. is moving comparatively rapidly towards "maturity" in most areas of military technology. It is either catching up with the West, or is on the edge of surpassing it.

TABLE NINE - PART ONE

USDDR&E ESTIMATE OF THE RELATIVE STANDING OF THE U.S. AND U.S.S.R. IN THE TWENTY MOST IMPORTANT AREAS OF BASIC TECHNOLOGY AFFECTING MILITARY FORCES

BASIC TECHNOLOGIES	U.S. SUPERIOR	U.S.-USSR EQUAL	USSR SUPERIOR
1. Aerodynamics/Fluid Dynamics		X	
2. Automated Control	X		
3. Chemical Explosives			X →
4. Computer	← X		
5. Directed Energy		X	
6. Electrooptical Sensor (including IR	X →		
7. Guidance and Navigation	X →		
8. Hydro-acoustic	X →		
9. Microelectronic Materials and Integrated Circuit Manufacture	← X		
10. Non-Acoustic Submarine Detection		Cannot determine	
11. Nuclear Warhead		X	
12. Optics	X →		
13. Power Sources (Weapon)			X →
14. Production/Manufacturing	X		
15. Propulsion (Aerospace)	X →		
16. Radar Sensor		X	
17. Signal Processing	X		
18. Software	X		
19. Structural Materials		X	
20. Telecommunications	X		

1. The list in aggregate was selected with the objective of providing a valid base for comparing overall U.S. and USSR basic technology. The technologies were specifically not chosen to compare technology level in currently deployed military systems. The list is in alphabetical order.

2. The technologies selected have the potential for significantly changing the military balance in the next 10 to 20 years. The technologies are not static; they are improving or have the potential for significant improvements.

3. The arrows denote that the relative technology level is changing significantly in the direction indicated.

4. The judgments represent averages within each basic technology area.

Source: DOD, PDR&A, p. II-32

TABLE NINE - PART TWO

USDDR&E ESTIMATE OF THE RELATIVE STANDING OF THE U.S. AND U.S.S.R. IN THE TWENTY MOST IMPORTANT AREAS OF DEPLOYED MILITARY SYSTEMS*

DEPLOYED SYSTEM	U.S. SUPERIOR	U.S.-USSR EQUAL	USSR SUPERIOR
Strategic			
ICBM		X	
SSBN/SLBM	X —→**		
Bomber	X —→		
SAMs			X
Ballistic Missile Defense			X
Anti-satellite			X
Tactical			
Land Forces			
SAMs (including Naval)		X	
Tanks			←— X
Artillery		X	
Infantry Combat Vehicles			X
Anti-tank Guided Missiles		X	
Attack Helicopters		X —→	
Chemical Warfare			X
Theater Ballistic Missiles		X —→	
Air Forces			
Fighter/Attack Aircraft	X —→		
Air-to-Air Missiles	X		
PGM	X		
Air Lift	X		
Naval Forces			
SSNs		X	
Anti-Submarine Warfare	X —→		
Sea-based Air	X —→		
Surface Combatants		X	
Cruise Missile		X	
Mine Warfare			X
Amphibious Assault	X —→		
C^3I			
Communications	X —→		
Command and Control		X	
Electronic Countermeasure		X	
Surveillance and Reconnaissance	X —→		
Early Warning	X —→		

*These are comparisons of system technology level only, and are not necessarily a measure of effectiveness. The comparisons are not dependent on scenario, tactics, quantity, training or other operational factors. Systems farther than 1 year from IOC are not considered.

**The arrows denote that the relative technology level is changing significantly in the direction indicated.

2. The Superior Weight of the Soviet Effort

Part of the reason for this shift in favor of the U.S.S.R is shown in Table Ten. While the total defense expenditure trends shown in Table Ten have received broad publicity, it is important to note that these trends bad as they are, are more favorable than the trends shown in Table Ten for investment or research and development.

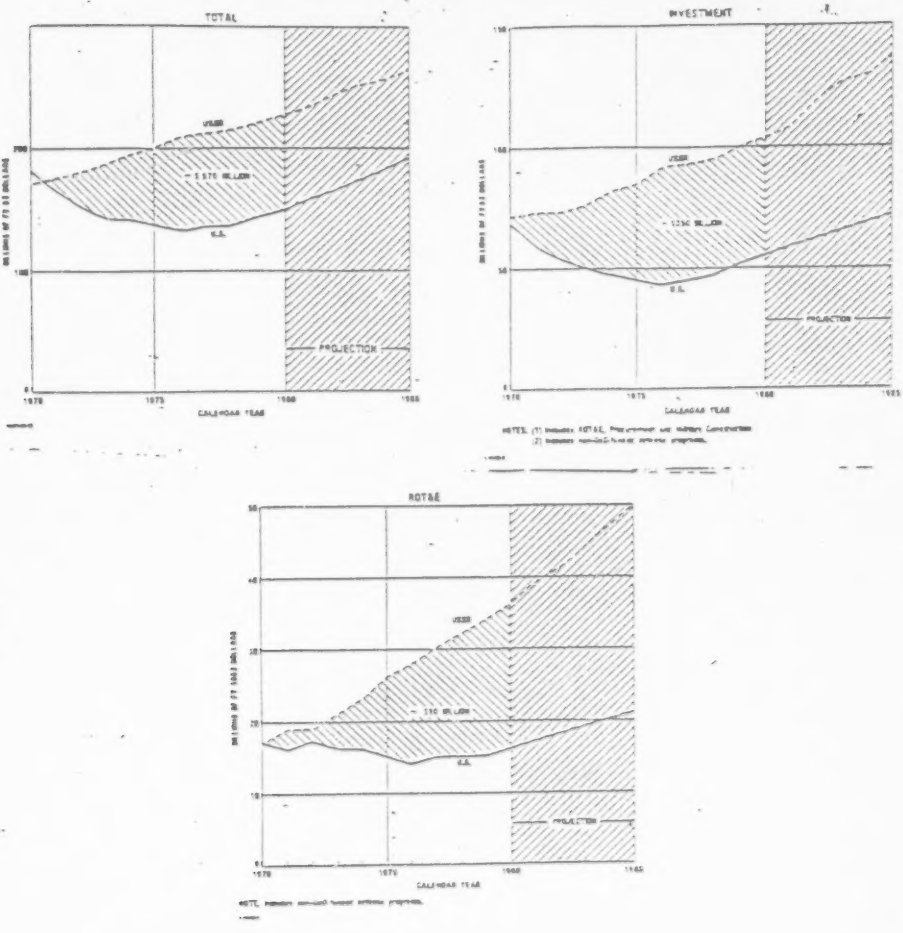
If Soviet activity is estimated in terms of dollar-equivilent prices, the Soviet military investment effort (procurement, RDT&E, and Military Construction), has continued to grow at the rate of about 4% in real terms for the last decade. In contrast, the U.S. rate declined for the first five years of the 1970s, although it too has increased at about 4% per year since 1975. As a result, the Soviet investment effort has moved from rough parity with the U.S. to about a 2:1 superiority. This superiority will increase to about 2.3:1 by 1990 on the basis of current projections in spite of the Reagan increases.

The latest DOD and CIA studies also indicate that during 1971-1980, Soviet military investment exceeded that of the U.S. by more than 80%, or by $350 billion in constant FY 1982 dollars. While such studies are necessarily somewhat uncertain, this year's CIA and DOD estimates do reflect a major reappraisal of past studies, and it is interesting to note that last year's projection of the 1971-1980 gap in FY 1982 dollars by the same agencies was only $240 billion.

88-647 O—82——6

TABLE [illegible]

COMPARATIVE TRENDS IN U.S. AND SOVIET DEFENSE EXPENDITURE ON TOTAL FORCES, INVESTMENT, AND RDT&E



Source: Adapted from DOD, PRDA, FY 1982, page II-23

This gap is reflected in recent Soviet new equipment deployments. During the last three years, the Soviet investments effort has paid off in such key areas as (a) more accurate ICBMs, (b) interceptors and tactical aircraft which approach technological parity with most of the aircraft the West is now deploying, (c) new tactical and strategic SAMs, (d) new armored vehicles which are generally superior to those that the U.S. will have in inventory in large numbers before 1985, (e) new anti-tank guided missiles, (f) look-down shoot down and other pulse doppler radars, (g) new AWACS prototypes, (h) new electro-optical guidance systems approaching currently deployed Western systems capability, (i) submarines with higher speeds and deeper diving capability than any Western submarine, (j) significantly improved anti-ship missiles and electronics, and (k) a major increase in relative electronic warfare capabilities.

This Soviet progress seems certain to accelerate even further during the 1980s in view of the RDT&E expenditure data show in Table Ten. While such R&D expenditure comparisons are more uncertain than comparisons of total investment, they seem almost cetain to be correct in broad terms and they are supported by independent estimates of the increase in numbers of U.S. and Soviet scientists and scientific facilities, and of the relative amounts of such resources each nation devotes to military applications.

The U.S.S.R. has gone from parity in RDT&E expenditures in 1970 to a more than 2:1 lead in 1980, and will approach a 2.5:1 superiority over the U.S. in 1990. Soviet expenditures

have exceeded U.S. expenditures by about $90 billion in constant FY 1982 dollars over the last decade, and the rate of growth in the Soviet effort has steadily accelerated in real terms.

Equally importantly, much of the work recently done for the Joint Economic Committee of Congress indicates that the U.S. and U.S.S.R. may be converging in terms of scientific innovation and general industrial productivity. While both sharply lag behind nations like Japan and Germany, the decline in rate of growth in U.S. capabilites has been more severe and when adjustments are made to compare only the U.S. and Soviet efforts in defense, as distinguished from the total U.S. and Soviet economics, it seems likely that the U.S. rate of productivity and innovation has declined to the Soviet level.

3. Problems in Innovation and Production

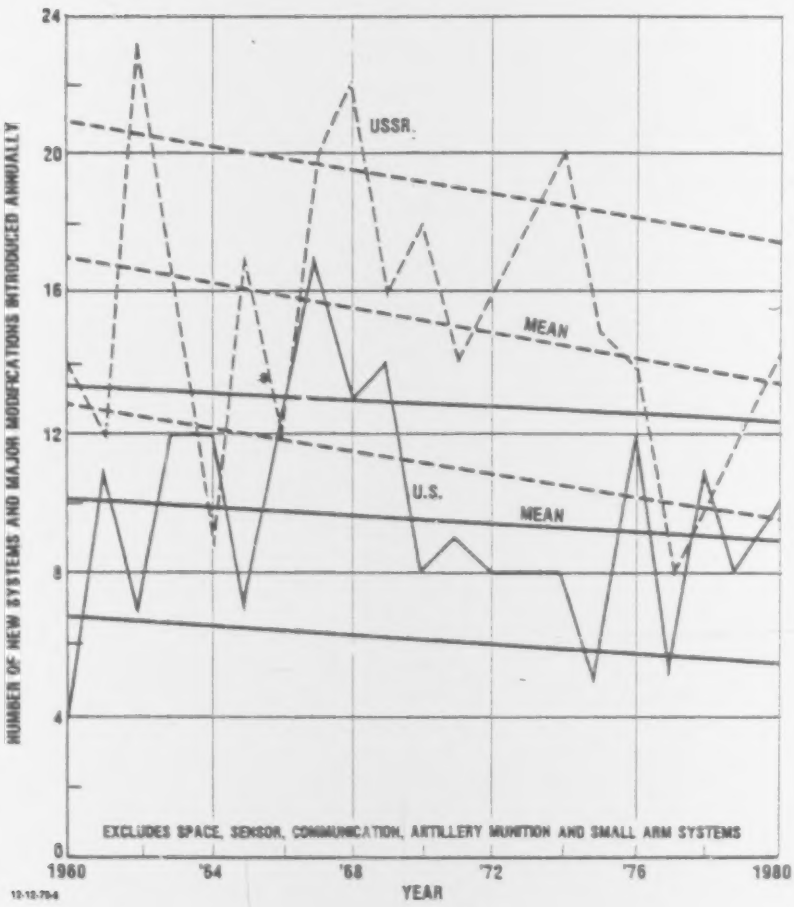
These problems are further illustrated in Tables Eleven and Twelve. Table Eleven shows that the Soviet Union still has a striking lead over the U.S. in the number of new systems it is deploying, although it has moved from a position where it was proliferating systems in an effort to catch up with U.S. technology to one of near maturity and far greater sophistication in terms of the items being deployed. Table Eleven may even exaggerate the net effect of these trends in favor of the U.S. because it takes no account of the relative number of systems each side deploys per "new system," or the rate of transfer into each side's combat force structure.

The recent inability of the U.S. to "feed" its force structure with new items in sufficient numbers has had too much publicity to require much discussion, but it is important to note that these U.S. problems have no apparent Soviet counterpart. For all the Western rhetoric about the problems of the Soviet system, it is the U.S. which over the last five years has appeared to strangle in its own bureaucracy and paper work, and the U.S.S.R. which has been able to conduct a competitive and relatively efficient effort to transfer new systems into the hands of its armed forces.

This is illustrated in broad terms in Table Twelve, which compares the relative trends in military production on both sides. While Table Twelve demonstrates that our Allies are doing a great deal to keep the West's overall military production competitive to that of the Warsaw Pact, it shows a massive decline in relative U.S. capabilities. Further, the Soviet production base has shifted strikingly since 1976, so that a much higher percentage of its total production consists of new systems. For example, only about 25-30% of Soviet tank production consisted of the most modern types in 1976, production of the T-72 constituted well over half of the 2,000-3,000 tanks the U.S.S.R. produced in 1980. Similar trends have emerged in aircraft production, and many other key weapons categories.

TABLE ELEVEN

COMPARATIVE RATES OF U.S AND SOVIET TECHNICAL INNOVATION IN MAJOR WEAPONS SYSTEMS



Adapted from DOD, PRD&A, FY 1982, p. II-7

TABLE TWELVE

PRODUCTION SUMMARY OF SELECTED
TACTICAL WEAPONS FOR NATO[1] AND WP COUNTRIES

WEAPON	1976-1980 ANNUAL AVERAGE RATIOS		1980 RATIOS	
	USSR/U.S.	WP/NATO	USSR/U.S.	WP/NATO
TANKS	2.5:1	2:1	4:1	3:1
OTHER ARMORED VEHICLES[2]	6:1	3:1	12:1	3:1
ARTILLERY (OVER 100 mm)	20:1	8:1	5:1	2:1
TACTICAL COMBAT AIRCRAFT[3]	2:1	1:1	2:1	1:1
MILITARY HELICOPTERS	3:1	1:1	3:1	1:1
SAMs (NOT MAN-PORTABLE)[4]	17:1	7:1	9:1	5:1
MAJOR NAVAL SURFACE COMBATANTS (OVER 1,000 TONS)	1:1	1:2	1:1	1:2
ATTACK SUBMARINES	3:1	1:1	9:1	2:1

[1]Includes France.

[2]Includes light tanks, infantry combat vehicles, armored personnel carriers, reconnaissance vehicles, and fire-support and air-defense vehicles.

[3]Includes tactical fighter, attack, reconnaissance, electronic warfare, and all combat-capable tactical training aircraft.

[4]USSR and WP figures include SAMs for other countries.

Source: Adapted from Department of Defense working papers, and DoD, PRDA, p. II-25

4. "Force Multipliers" Versus "Force Decliners"

More controversially, the last ten years have also seen a steady decline in the practical effect of most forms of U.S. superiority in military technology. The once vaunted TOW and Dragon "force multipliers" will require substantial upgrading to provide a high probability kill against the T-72 Soviet tank, and will even then probably be even less successful against the T-72's successor. The A-10 aircraft needs a helicopter to help it into the combat zone, and has proved relatively ineffective in killing tanks in Europe under many "real-world" combat zones.

The "assault breaker," originally due to be deployed under another name as long ago as 1970, is back in limbo. The U.S. has not succeeded in building either a modern assault helicopter or scout helicopter. The Maverick, as Prime Minister Begin somewhat inadvertantly recently disclosed, has serious problems when it cannot home on a clear "visual contrast" in full sunshine, and its "all weather" successor is presently occupying the same drawing board status as the assault breaker and attack helicopter. As for U.S. tanks, armored fighting vehicles, and the F-16 . . .

Whether or not one accepts such explanations of this phenomenon as the Spinney report, or simply ascribes them to trying to do too much with too little money and to support too low a quality of military manpower, the fact remains that the U.S. has very few real "force multipliers." The U.S. does keep its

lead in air combat fighters, AWACs, and AAM/avionics capability, and this lead probably does give it a real "force multiplier" effect. In most cases, however, the U.S. has not been able to get its technology into the field fast enough to take advantage of it before the U.S.S.R. could develop similar systems or countermeasures. As a result, the true net effect of most U.S. "force multipliers" has been to wait for systems that have been deployed too late or not deployed at all, and to institutionalize U.S. military technology as a sophisticated form of "force decliner."

5. A Different Case for Restricting Technology Transfer

It does not require a sophisticated mathematician to calculate that none of the recent Reagan increases in the defense budget will even begin to close any of the expenditure gaps shown in Table Ten. Further, as the new Administration's defense planners are rapidly learning, the tendency to underfund U.S. military technology and production during the Carter Administration's efforts to "balance the budget" built up a tremendous mortgage in terms of systems and programs that did not have an adequate technology base or adequate funding.

This undercosting of the FY 1979 to FY 1981 defense budgets and outyear projects involves billions of dollars in "invisible" defense costs which the new Administration will now have to pay. The resulting problems have already become apparent in the case of such crucial new systems as the Trident submarine,

cruise missile and new strategic bomber, but the full scope of the problem will only be apparent once the new Administration finishes grappling with the preparation of the FY 1983 defense budget.

If the U.S. is even to begin to cope with this situation, it must bring technology transfer under tight control. It is unrealistic to talk about increasing U.S. defense R&D to the point where it can compete with the U.S.S.R., or using technology exports to finance continuing Western superiority, and while it seems valid to argue that issues like the East-West gas pipeline may have more ultimate strategic importance, and that the "linkage" of U.S. grain exports to Soviet behavior may offer the U.S. a lever with more political impact, it is technology transfer which presents the most immediate danger that the West may end up exporting its principle military advantage over the Soviet Union to the Soviet Union.

U.S. policy must take account of the fact that the evidence available on the current balance of military technology, and the relative U.S. and Soviet effort in defense R&D, indicates that the U.S is rapidly losing its traditional lead in technology, and that it is not making sufficient effort to compete. As a result, every flow of military related technology increases both the efficiency of a superior Soviet effort, and the speed with which the U.S.S.R. can equal or overtake the U.S.

This is particularly true where such technology is relevent to "force multipliers." Although the U.S. has made many claims in this area over the last decade, and has successfully deployed true "force multipliers" in a few areas like air to air missiles and anti-tank guided missiles, the U.S. has generally failed to deploy enough advanced military technology to even act as "force equalizers." While there are many reasons for the decline in the effectiveness of its defense technology effort, the U.S. cannot afford the risk of further weakening its ability to counter Soviet superiority in mass. It is losing its past edge in most areas of military technology, and in those others where it is likely to retain superiority, it is reaching the point of "diminishing returns."

Put differently, the Soviet military technology base has advanced to the point were a U.S. dollar invested in new U.S. weapons technology does not buy enough more military capability than a ruble to compensate for U.S. problems in manpower, readiness, and overall defense effort.

F. ORGANIZING A NEW APPROACH TO A EAST-WEST TRADE

Given the background, the current Reagan Administration initiatives are only the first steps in implementing an effective U.S. approach to East-West trade. The U.S. must go significantly further. It needs improved planning and analysis of how it can use East-West trade to protect its strategic interests. It needs centralized policy direction, the establishment of the Office of Strategic Trade that Senator Garn has proposed in S.2606 with a role, a consensus on tighter controls with our Allies, and the implementation of a number of more detailed steps to revise the American approach to East West trade.

1. Dealing With East-West Trade In Strategic Terms

The U.S. must accept the fact that all aspects of East-West trade have broad strategic implications. It must accept the reality that it cannot base its trade policy on the hope for "detente" when the Soviet bloc is using trade largely to support its strategic competition with the West. It must reconsider East-West trade in view of the fact the U.S. faces a steady erosion of its relative military power and direct power projection capabilities that it cannot compensate for solely through military means.

The U.S. also needs to plan its overall trade policy to serve other strategic interests. As the Iranian hostage incident demonstrated all too clearly, the problem the U.S. faces is

not simply one of ensuring that East-West trade does not become an extension of Soviet aggression by other means, or a method through which the West finances the Soviet threat against itself. The U.S. needs to simultaneously organize for more limited forms of economic warfare. It needs, in effect, to be ready to alter von Clausewitz's dictum, and be able to use economics as "an extension of diplomacy by other means."

2. The Need for Centralized Management and Improved Organization

The U.S. must act to improve the organization of its planning and management of East-West trade policy. The current effort presents a familiar, if not classic problem in American government. There are many kinds of East-West trade, and as a result they are dealt with by many different compartments within the Executive branch. The recent debate within the Reagan Administration over the Grain Embargo has clearly illustrated that the new Administration inherited a critical problem in East-West relations where its organizational and bureaucratic tools were inadequate.

This same "no-one-in-charge" situation has characterized the efforts of both the Carter and the Reagan Administrations to put someone, or some Agency, in charge of dealing with Soviet bloc needs for oil imports, and oil and gas technology as part of its need to establish some focal point for international

energy policy. A similar debate seems certain to arise over Western loans to the Soviet bloc, once the current Polish crisis diminishes to the point were long term planning is possible.[38]

Senator Garn's proposed Office of Strategic Trade would provide the government with an important tool for adopting such policy, and analyzing its merits independently of the kind of advocacy typical of the Defense Department. However it must be expanded to cover all aspects of East-West trade. Control over technology transfer simply is not adequate to serve U.S. strategic interests.

4. Seeking a Consensus With Our Allies

It should be noted, however, that such an Office would be sharply limited in its impact on even technology transfer unless it was successful in exerting authority over all U.S. dealings with CoCom, and unless West Europe and Japan could be persuaded to join the U.S. in taking an aggressive stance in restricting technology transfer. Getting such allied support may now be easier said than done. Most of America's principal Allies feel that the U.S. is already overly restrictive, particularly Japan

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38 Several U.S. banks feel in fact, that Poland has already "defaulted" on $50 billion in loans and will require a minimum of $100-150 billion in new loans and refinancing to get through its current crisis. Washington Post, 4 June 1981.

and West Germany.[39] It will take several years to negotiate a change in this position, and even then, many Allied governments might not have the popular political support to act on such a policy.

Table Thirteen provides a graphic illustration of how important Allied support will be, and one cannot ignore the fact that Allied support in any U.S. effort to control the technology transfer aspects of East-West trade policy will become steadily more important in the 1980s. The U.S. and U.S.S.R. are "converging" in technical innovation and productivity because of the sharp decline of the U.S. relative to the other major industrialized nations in the West. As a result, more and more technology wil come under Allied jurisdiction, and given patent flows since the mid-1970s, this will show up in terms of deployed technology no later than the mid-1980s. As a result, it will be ever more important to have a single office in the U.S. that can negotiate effectively with Europe and Japan.

4. A Detailed Agenda for Action

As a result, the U.S. must take several detailed steps which go beyond Senator Garn's current bill. This will require the U.S. to implement the following action agenda:

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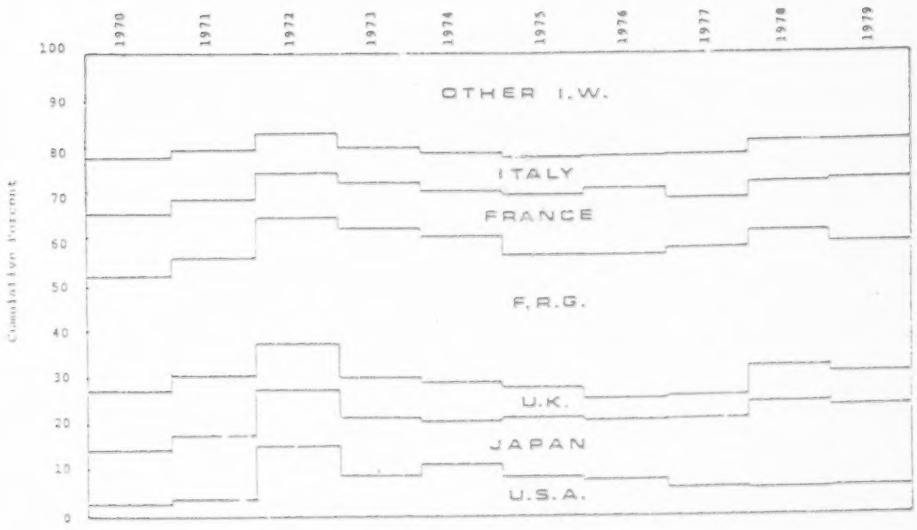
39 Some of the reasons for this difference in perspective are obvious. The U.S.S.R. sells over $6 billion worth of petroleum products annually to Western Europe. Soviet bloc trade with Western Germany has quadrupled since 1970, and is now equal to about 25% of all West German trade.

TABLE THIRTEEN

THE ROLE OF THE UNITED STATES RELATIVE TO OTHER WESTERN NATIONS IN CONTROLLING EXPORTS OF HIGH TECHNOLOGY PRODUCTS TO COMMUNIST COUNTRIES



Source: Martens, "Quantification of Western Exports of High Technology Products to Communist Countries", ITA, DOC, January, 1981

- Accept the Fact That the Problem Goes Beyond Technology Transfer

  The U.S. must expand any Office of Strategic Trade (OST) to include the full range of trade activities. This must include areas where the U.S. has leverage--such as grain exports, and areas where the West may become vulnerable--such as the East-West Gas Pipeline and Soviet bloc needs for oil and mineral imports. It must include the areas where the Soviet Union is using East-West trade as a weapon--such as arms exports, its merchant marine and Aeroflot, technical and scientific exchanges, and industrial espionage.

  At the same time, an OST must be charged with the broader responsibility for economic warfare. It must have responsibility for economic warfare. It must have resonsibility for planning and managing any further embargos, boycotts, and other measures of the kind the U.S. has used against Iran and the Soviet Union.

- Some One Must Truly Be In Charge

  The whole point of an OST is to put some one in charge of policy, implementation, and assessment. Interagency coordination will be needed, and the agencies of the U.S. government must carry out their proper role. The solution cannot be interagency "management"; no such thing exists.

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- o There Must Be A Concerted Effort to Publicize the Problems and Inform American Industry and the Public

  The problem is not simply one of management, but rather one of persuasion. An open society dependent on the support of its allies must rely on self enforcement, on convincing a wide range of Americans , Europeans, and Japanese that they should cooperate in limiting East-West trade to levels and categories that will not threaten Western security. This means broad disclosure of the risks and problems in East-West trade, of Soviet espionage activity, and dual use of civilian items in military roles. It means clearly identifying the critical technologies involved in East-West trade, an idea that J. Fred Bucy of Texas Instruments has supported for years.

- o There Must Be Enforcement

  The U.S. must also actively enforce its trade restrictions within the limits of a free society. It must make proper use of its customs service, severely penalize known violators, and avoid absurdities like the fact that an industry can be penalized up to a million dollars for giving foreigners an improper commission to get an export contract, but only $100,000 for selling technology that may cost the U.S. billions in increased defense expenditures.

- There Must Be Consistency

  It will take several years to persuade both U.S. industry and our allies to cooperate. The U.S. cannot "blow hot and cold," change signals, or violate its own guidelines without consultation. No one will follow where there is no leadership.

- We Must Work With Our Allies

  The U.S. cannot, and should not, attempt to force its view of this issue on it Allies. It must accept the fact that their political dynamics are different, and that most of our allies are far more dependent on East-West trade. The U.S. must be flexible, willing to listen, and willing to compromise.

- We Must Accept the Fact That such Efforts Will Be Inefficient

  The "fog of war" provides an atmosphere of blinding clarity in comparison with the "fog of economics." U.S. trade policy must accept the fact that most restrictions or policies will have limited success, that there will be many bad cases, and that the benefits of any given restriction of trade may be uncertain. The result will always be to buy an uncertain margin of time and Soviet inefficiency. Cumulatively, however, bad cases may have a tremendous impact, particularly because only partial success may be necessary to place sharp limits

on Soviet military forces. The long period of Soviet inferiority in jet engines, for example, made Soviet advances in air frames academic, the Soviet inferiority in avionics now limits its advances in jet engines.

This combination of policy, organization, and tactics will allow the West to organize effectively to either compete with the Soviet bloc or to pursue "detente" in meaningful terms. It will allow the U.S. to minimize the erosion of its national security position within the limits imposed by an open society and an alliance of sovereign nations, and to maintain the flexibility it needs to achieve consensus. Above all, it will create a climate in which the West can act on the basis of a common understanding of the true meaning of East-West trade.

APPENDIX A

DETAILED STATISTICS ON

EAST-WEST TRADE

TABLE A - 1

TOTAL EAST-WEST TRADE: 1978-1980

Eastern Imports (millions $)

	1978		1979		1980	
	U.S.	Total	U.S.	Total	U.S.	Total
Bulgaria	20.3	474.2	37.0	696.6	24.9	776.7
Czechoslovakia	58.0	1,956.0	50.9	2,465.4	65.9	2,875.1
GDR	35.1	3,175.0	36.4	3,926.7	44.1	5,060.0
Hungary	74.1	1,747.2	121.9	2,331.7	107.5	2,547.4
Poland	438.9	3,849.0	426.5	4,475.4	416.7	5,028.5
Romania	375.7	2,035.4	357.6	2,896.1	312.2	2,983.2
USSR	253.6	11,346.7	324.3	16,183.5	452.9	20,027.3
PRC	356.2	3,820.2	653.3	5,757.8	1,058.3	8,262.7
	1,612.1	28,403.8	2,007.9	38,733.2	2,482.5	47,560.9
Soviet Bloc Only	(1,255.9)	(24,583.3)	(1,354.6)	(32,975.4)	(1,424.2)	(39,298.2)

Western Exports (millions $)

Bulgaria	48.1	1,006.6	56.2	1,113.7	160.7	1,537.8
Czechoslovakia	104.4	2,152.9	303.4	2,581.9	236.0	2,696.7
GDR	203.4	3,667.6	402.8	4,806.2	558.4	5,574.7
Hungary	97.7	2,819.5	77.6	2,811.0	79.0	3,005.6
Poland	677.0	5,250.6	786.3	5,668.6	710.5	6,012.2
Romania	317.6	2,761.5	500.5	3,518.5	720.2	3,568.8
USSR	2,249.4	13,331.4	3,604.1	16,527.5	1,509.7	16,902.0
PRC	819.2	6,484.8	1,716.5	9,140.1	3,749.0	12,009.3
	4,516.8	37,474.9	7,447.4	46,167.5	7,723.5	51,307.1
Soviet Bloc Only	(3,697.6)	(28,505.1)	(5,730.9)	(37,027.4)	(3,974.5)	(39,298.0)

SOURCE:

Bulgaria, Czechoslovakia, Hungary:
UN trade data, magnetic tapes. Data for 1980 from OECD Statistics of Foreign Trade, Series A, February 1981. 1980 US data from Census Bureau, magnetic tapes.

GDR:
UN trade data, magnetic tapes. Data for 1980 based on 10-12 month figures from OECD Statistics of Foreign Trade, Series A, February 1981. (Statistics for FGR-GDR trade from Federal Republic of Germany, Statistical Office, Warenverkehr mit der DDR, Reihe 6, 1977-79, and press reports for 1980.

Poland, PRC:
UN trade data, magnetic tapes. Data for 1980 from OECD Statistics of Foreign Trade, Series A, March 1981. 1980 U.S. data from Census Bureau, magnetic tapes.

Romania:
UN trade data, magnetic tapes. Data for 1980 from OECD Statistics of Foreign Trade, Series A, March 1981. 1980 preliminary figures derived from partial-year OECD data (except U.S. from full-year Census Bureau data).

USSR:
UN trade data, magnetic tapes for 1977-79; OECD, Statistics of Foreign Trade, Series A, July 1980 for 1979 data.

TABLE A-3

U.S. TRADE WITH EASTERN NATIONS
($millions)

A. TOTAL U.S. TRADE

1. Total U.S. Exports

Bulgaria	48.12	56.23	160.70
Czechoslovakia	106.40	305.60	236.00
GDR	203.40	402.80	558.40
Hungary	97.70	77.60	79.00
Poland	677.00	786.30	710.50
Romanian	317.50	500.50	720.20
USSR	2,249.00	3,603.60	1,509.70
PRC	818.20	1,716.50	3,749.00
	4,517.22	7,449.13	7,723.50
Soviet Bloc Only	(3,699.02)	(5,732.63)	(3,974.50)

2. Total U.S. Imports

Bulgaria	19.09	34.70	24.86
Czechoslovakia	58.00	50.90	65.90
GDR	35.10	36.40	43.40
Hungary	68.50	112.20	107.50
Poland	438.90	426.50	416.70
Romania	346.60	329.30	312.20
USSR	540.40	873.20	452.90
PRC	324.00	592.30	1,058.30
	1,830.50	2,455.50	2,481.76
Soviet Bloc Only	(1,506.59)	(1,863.20)	(1,423.46)

B. AGRICULTURAL TRADE

	1978	1979	1980
Bulgaria	39.89	41.02	127.34
Czechoslovakia	78.10	272.50	205.50
GDR	187.30	370.10	534.20
Hungary	52.70	24.50	24.40
Poland	503.50	651.40	571.50
Romania	148.50	336.50	462.60
USSR	1,686.50	2,854.90	1,047.10
PRC	573.30	990.20	2,209.70
	3,269.79	5,541.12	5,182.34
Soviet Bloc Only	(2,696.49)	(4,550.92)	(2,972.64)

U.S. Imports

Bulgaria	16.20	27.77	19.12
Czechoslovakia	6.20	7.80	10.40
GDR	2.50	2.20	2.80
Hungary	34.60	35.90	31.30
Poland	155.20	165.00	154.00
Romania	31.40	34.00	30.20
USSR	12.60	14.10	8.20
PRC	74.50	80.10	118.80
	333.20	366.87	374.82
Soviet Bloc Only	(258.70)	(286.77)	(256.02)

C. NON-AGRICULTURAL TRADE

Non-Agricultural	1978	1979	1980
Bulgaria	8.23	15.21	33.36
Czechoslovakia	28.30	33.10	30.50
GDR	16.10	32.70	24.20
Hungary	45.00	53.10	54.60
Poland	173.50	134.90	139.00
Romania	168.90	164.00	257.60
USSR	562.50	748.70	462.50
PRC	244.90	716.30	1,539.30
	1,247.13	1,908.01	2,541.16
Soviet Bloc Only	(1,002.53)	(1,181.71)	(1,001.86)

Non-Agricultural			
Bulgaria	2.89	6.93	5.74
Czechoslovakia	51.80	43.10	55.50
GDR	32.60	34.20	40.60
Hungary	33.90	76.30	76.20
Poland	283.70	261.50	262.70
Romania	315.20	295.30	282.00
USSR	527.80	859.10	444.70
PRC	249.50	512.20	939.50
	1,247.39	2,088.63	2,106.94
Soviet Bloc Only	(1,247.89)	(1,576.43)	(1,167.44)

SOURCE: US Census Bureau, EM-522 and IM-145 magnetic tapes

Poland and Western Defense: A Priceless Window of Opportunity

by Anthony H. Cordesman

IT MAY INITIALLY SEEM like the worst kind of Polish joke to state that the most urgent national security problem the West faces is not its defense budgets, the Persian Gulf, ICBM vulnerability, or the theater nuclear balance, but Poland. However, there is nothing humorous about this strategic reality.

Virtually every action the West can take will be defensive. Such actions can at best only partially offset the West's failure to compete with the USSR over the last decade. In contrast, if the Polish revolution survives, it will slowly destroy the Warsaw Pact as an offensive entity.

It will set a process in motion that will prevent the Soviet Union from ever counting on its satellites for military support in a crisis; it will serve as an example that is nearly certain to force the eventual liberalization of the other Soviet-bloc Communist parties; and, it will for the first time create Communist states where "detente" with the West might credibly mean true "peaceful coexistence."

The Soviet Scenario For Action

There is, of course, no guarantee the Polish revolution will survive. Some senior foreign-policy experts like Henry Kissinger are firmly convinced that the Polish revolution, and the conflict between Solidarity and the Polish Communist Party are now moving inexorably toward Soviet intervention in the form of direct military action by the Warsaw Pact, or a Soviet-backed repression of Solidarity by the hard liners of the Polish Communist Party, armed forces, and security forces. If this intervention takes place, there is nothing the West can do about it except mourn and recriminate. Thirty-six million people will be re-enslaved, and the hopes of Poland and the rest of Eastern Europe, as well as Soviet liberals and intelligentsia, will be crushed for another generation.

Most US analysts, however, now believe in a different and in some ways even grimmer scenario. They believe that the Soviet Union cannot afford to directly intervene in Poland. They believe that the Polish Communist Party and armed forces would resist such a move, that it would mean prolonged civil war in Poland, and that the shock of such Soviet action would destroy the remaining shreds of credibility Soviet ideology has in countries beyond the reach of Soviet arms. They postulate a different set of Soviet actions based on the following scenario:

- The Soviet Union will show restraint

CIA map

because it perceives that time is on its side. The economic crisis in Poland is making the Polish people more and more "extreme" in demanding reform. This is forcing Solidarity to become more "extreme," and to make more mistakes like openly challenging the Communist parties of the other Warsaw Pact states.

If the Polish revolution survives, it will set a process in motion that will prevent the Soviet Union from ever counting on its satellites for military support in a crisis.

- As this process continues, Solidarity and Polish economic reform will be more and more discredited. The revolution will effectively "self-destruct" as it is given the blame for two decades of Soviet and Polish Communist Party mismanagement.
- At the same time, Solidarity will be perceived as so extreme, even in the West, that Soviet or Polish Communist Party action to suppress it will be seen as inevitable and "justified." The conditions which will permit Soviet intervention will be created.
- The now pro-reform, pro-Solidarity technocrats, party members, military, and even internal security officials in Poland will be steadily alienated from Solidarity as they struggle to bring any kind of order out of the situation in Poland and to feed the Polish people during the coming winter. At the same time, officials will be forced to choose between the workers and the Party. The reform and liberal-minded members of the Polish intelligentsia, Communist Party, and government will be clearly identified for eventual repression.
- The constant series of military maneuvers and threats around Poland's borders will contain the Polish revolution and hasten this process of collapse. It will give the USSR enough indirect leverage over the actions of the government and Communist Party in Poland to both ensure continued conflict between them and Solidarity, and to allow the hard liners in Poland to reassert their strength once the revolution collapses.
- Throughout this process, it will become more and more clear to other Eastern European nations—and indeed the rest of the world—that the West is militarily helpless, disunited, and unwilling to provide the scale of economic aid that the Polish revolution needs to have any real chance of surviving.

It is important to realize, however, that Soviet ability to stand by and let the Polish revolution self-destruct, and to intervene afterwards, hinges on Western inability or unwillingness to deal with Poland's economic crisis. If the West could agree to fund a Polish "Marshall Plan," the USSR would be faced with the grim alternatives of either letting the revolution proceed or intervening and completing the destruction of Soviet legitimacy as a center for world revolution.

There is a grim parallel in this scenario to the American Revolution. If a French monarchy had not backed American "extremists" with funds and naval power, Britain would almost certainly have been able to wait until the Colonists collapsed in economic discord, and the eventual equivalent of the Battle of Yorktown would have destroyed the American rebellion.

The Western Economic Dilemma

In less troubled times, the need for Western action to deal with the economic vulnerability of the Polish revolution would be more clear, and the Western reaction more decisive. Unfortunately, the West is now in the midst of a broad economic recession, the United States is in the process of a massive cutback in domestic spending, and the Reagan Administration is only beginning to organize its international economic operations.

This is not a climate in which either America or its allies easily see the connection between aid to a Communist Poland and strengthening the defense of NATO, or are willing to spend billions of dollars to preserve the Polish revolution.

The issue is also truly one of billions. At

a recent meeting between Polish planners and US bankers at the Wilson Center of the Smithsonian Institution in Washington, DC, a senior US official estimated that the West would have to provide the equivalent of $3-billion a year in 1981 dollars simply to allow Poland to refinance its existing debts. He also stated that another $2-billion a year would be required to allow rapid Polish economic recovery and stabilize Poland's economy in a way that would allow the Party and Solidarity to end the spiraling conflict between them.

The statistics behind the Polish economic crisis are shown in Table One. It should be noted that these figures are Polish, and that the economic projections which Polish experts have labeled as "Pessimistic" were regarded by virtually all American experts present as "Optimistic." These projections indicate that unless Poland gets massive and immediate economic support from the West, its gross national product will decline by more than 15% during the next year.

In practical terms, these figures mean insufficient food this fall and winter, and nothing to buy in the stores. They mean no incentive to work for a worthless currency, and the disruption, if not the disintegration, of day-to-day life for virtually every Polish citizen. This economic future cannot do anything but drive the Polish people and Solidarity toward the same "extremism" that it would create in the US or any Western European country. It will not only make it impossible for the moderates in the Polish Communist Party and Solidarity to join hands, but result in returning Poland to the USSR on a silver platter.

No banker can take a commercial risk in the face of such numbers, particularly given the prospect of Soviet intervention, or Soviet sabotage of Polish economic reform using the hard liners still in the Polish

It is important to realize, however, that Soviet ability to stand by and let the Polish revolution self-destruct, and to intervene afterwards, hinges on Western inability or unwillingness to deal with Poland's economic crisis.

government. Bankers do not "risk" their depositors' money, they "rent" it.

In fact, US banks could not justify even refinancing the 15% US share of Poland's existing debt under current circumstances without some kind of external loan guarantee. This would mean extending $450-million a year more for the next half decade—with no repayment of principal and no prospect of Polish economic recovery.

They are even less able to extend the much larger sums of money that would really be required. The US Government faces equal problems in providing such loans or loan guarantees. It would be forced to go to its 220 million-odd "shareholders" to defend a loan or loan guarantee to American banks, which the Soviet Union could easily invalidate through armed intervention or sabotage.

The Military Side of the Issue

There is, however, a tremendous potential benefit to the West in finding a way out of this economic dilemma. Table Two shows part of the damage that a successful Polish revolution would do to Soviet hopes of ever using the Warsaw Pact as an offensive force to conquer Europe. Combined with Poland's geographic position, the figures in Table Two mean that the USSR must be able to count on Polish forces. If it cannot, the Warsaw Pact becomes in fact what it has always professed to be in public: a defensive alliance. In broad terms, this is worth more than 10 divisions and 1,000 tactical aircraft to NATO.

Equally important, a "free" Poland means the USSR will be encircled by its own massive ideological and political failures. No matter how many future "spoiling" operations it conducts through its arms sales, support of terrorism, use of proxy military forces, and interventions in Third World nations, the success of Poland's efforts to free its Communist Party and people will deprive the USSR of its revolutionary credibility.

Poland will then complete what the Chinese People's Republic, Egypt, and Afghanistan have begun. This is of critical military and strategic importance because, ultimately, the USSR can expand its global military power on a sustained basis only if it can resist further shocks to its already damaged revolutionary "legitimacy." The USSR will otherwise become a military power that other revolutions may use, but not follow.

A Way Out of the Western Dilemma

Fortunately, the West does have a way out of its economic dilemma—if it is willing to recognize the fact that the refinancing of the Polish revolution is not a problem for bankers, or one which can be decoupled from its defense. The problem of guaranteeing the refinancing of the Polish debt and the additional loans Poland needs is a Western problem *only* if the West chooses to let the USSR succeed in isolating Poland.

While the USSR has declared that it has no responsibility for any Polish default, it is important to note that US and European banks made their loans to Eastern Europe only because they believed the USSR tacitly stood behind such loans.

Accordingly, there seems little reason why the West should not now use its economic power to both force the USSR not to intervene in Poland and to stand behind Western refinancing of the Polish debt and the additional loans necessary to

Table One
Official Polish Government Economic Projections for 1982

Category	Optimistic	Pessimistic	Plan
Coal production	175 million tons	155 million tons	168 million tons
Exports	22 million tons	9.8 million tons	17.2 million tons
Industrial output in stable prices	+5.1%	-16.6%	-0.5%
Agriculture	No projection	+0.7%	+4.9%
Investment	No projection	-13%	-6.5%
National income produced	+2.1%	-8.3%	-1.4%
National income distributed after foreign trade	-1.1%	-15.6%	-4.5%
Consumption total	-2.3%	-10.0%	-5.6%
Employment in socially owned branches of economy	-3.4%	no change	-0.8%
Estimated shortage of supply in consumer market	-118-billion zloty	-557-billion zloty	-151-billion zloty
Trade balance:			
With East, including construction & services	-$1.1-billion US	0	-0.6-billion US
With West, including construction & services	+0.8-billion US	+1.8-billion US	+0.6-billion US

[1]Zloty is not converted to the dollar because the current official rate is 33 to the dollar, while the black market rate in Poland is nearly 400 to the dollar. The tourist rate is 40:1 at this writing and Polish economists estimate the zloty should be valued at 90-140:1.

allow the Polish economy to recover. In creating this "linkage," the West can draw on the following tools:

• **Linking Future Grain Exports to Repayment of Loans to Poland.** The USSR is now actively seeking to both increase its current purchases of grain, and to negotiate a long-term supply agreement with the US. The US could unilaterally tie its willingness to export to the requirement that no Soviet-bloc nation be in default of a debt. It might also be possible to get Canadian and Australian support for such a measure if the US acts promptly and takes proper account of Canadian and Australian sensitivities.

There is no doubt that such Western action would mean taking the Polish financial issue out of the arena of international finance and making it a major security issue. It would require the West to show a ruthless regard *for* human rights that matches the ruthless disregard for such that the USSR has exhibited in the past.

• **Linking Future Credits of Any Kind to Repayment.** Poland is not the only debtor to the West in the Soviet bloc, or the only Soviet-bloc nation that will need new Western loans. At the end of 1979, the USSR owed the West more than $17-billion and had annual debt service payments of $4.8-billion. The non-Soviet states, not including Poland, owed about $34-billion, and had annual debt service payments of $6.5-billion. Even without the Western financing of such massive projects as the East-West gas pipeline, the Soviet bloc will need $6-8 billion in new loans each year in the 1980s. A broad Western agreement that no new loans would be granted for 10 years after default by any bloc country would face the USSR, along with the threat of crippling the economic development of the Warsaw Pact.

• **Severe Penalties Enforced on Soviet-Bloc Trade.** These could include not only prohibitive tariffs, but exclusion of Soviet-bloc aircraft and marine carriers, draconian new controls on technology transfer, and an end to East-West scientific exchange agreements.

• **The West's Refusal to Finance the East-West Pipeline.** It is the USSR which will primarily benefit from the East-West gas pipeline, and from Western financing of a means of replacing its energy exports to its satellites and Western Europe. The USSR will need at least $10–15-billion to fully finance the pipeline, and could effectively be held to ransom by putting the financing of the line on an annual basis.

Table Two
Shifting the Warsaw Pact Balance: The Importance of Poland to Threat Forces in Northern and Central Europe[1]

	Total Warsaw Pact	Soviet		Total Non-Soviet		Poland	
		Numbers	% of Total	Numbers	% of Total	Numbers	% of Total
Military Manpower							
Army	828,000	428,000	48	458,000	52	210,000	24
Air	729,000	55,000	24	174,000	76	85,000	37
TOTAL	1,387,000	475,000	42	632,000	58	295,500	29
Division Equivalents							
Tank	23	13	57	10	38	5	22
MRD	23	13	57	10	38	3	13
Airborne	—	—	—	—	—	—	—
TOTAL	46	26	57	20	38	8	17
Main Battle Tanks	19,500	12,500	64	7,000	36	3,500	18
Operational Combat Aircraft							
Fighter/Attack	3,350	930	69	420	31	220	16
Interceptor	2,950	1,000	49	1,050	51	400	20
Reconnaissance	550	300	55	250	45	81	15
TOTAL	3,950	2,230	56	1,720	44	701	18
Defense Expenditures ($ Billions)			95	$ 13	2	$ 4.7	3

Source: Adapted from I.I.S.S., *The Military Balance, 1980-1981*.
[1] Includes all forces in GDR, Poland, and Czechoslovakia.
[2] Category I only.

There are many similar forms of economic "linkage" which the West can apply to force the USSR to both guarantee the financing Poland needs and to restrain from intervening in Poland. The problem, therefore, is not finding solutions, but

In practical terms, these figures mean insufficient food this fall and winter, and nothing to buy in the stores. They mean no incentive to work for a worthless currency, and the disruption, if not the disintegration, of day-to-day life for virtually every Polish citizen.

rather the will to apply them. There is no doubt that such Western action would mean taking the Polish financial issue out of the arena of international finance and making it a major security issue. It would require the West to show a ruthless regard *for* human rights that matches the ruthless disregard for such that the USSR has exhibited in the past.

Such linkage would also require rapid and decisive action from the Reagan Administration at a time when it has many other concerns, and when it must expect considerable resistance from allies like West Germany.

The economic pressures revealed in Table One mean that the West must act immediately to be effective. This will take leadership that goes beyond the bounds of conventional diplomacy and possibly covert pressure on those European allies who confuse detente with appeasement.

However, the alternatives to such leadership seem far worse: the collapse of the Polish revolution, and the loss of a priceless opportunity to correct the NATO-Warsaw Pact balance without deploying a single tank or nuclear weapon; the acceptance of the eventual Western refinancing of a successor Polish government which will be firmly back under Soviet control—a form of refinancing which will be little more than "blood money"—or even total default by such a government; the acceptance of Western European strategic dependence on the East-West gas pipeline with no strategic *quid pro quo*; and the flagging of Western weakness and loss of resolve to the world.

The US can ill afford a future competition in defense spending with the USSR where the US cannot match the Soviet level of effort, or to sacrifice the one major strategic opportunity the West has had to redress this balance in the last 10 years. ■☆■

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STATEMENT OF JAMES L. NELLIGAN, U.S. REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. NELLIGAN. Thank you very much, Mr. Chairman.

It is indeed a pleasure for me to appear before the Senate Banking Committee this morning, particularly, Mr. Chairman, to appear before you. I share your views on the Yamal Pipeline, and I applaud you for being a leader in presenting our views to the American public.

I am disappointed that we haven't been successful to date, but hopefully, through continued hearings and emphasis on this issue by yourself and others on Capitol Hill, we may be successful in the end.

As I said, Mr. Chairman, I am pleased to testify on what I consider to be a dreadful situation, dreadful because I fear the impact that this is going to have on my child and the future generations of children in America. I dread to think what's going to happen to the free world when the Soviet Union sits behind a big faucet and turns on the gas and turns off the gas at will.

Mr. Chairman, in 1921 Lenin stated the following:

WESTERN WORLD PREPARING OWN SUICIDE

The West will supply us with the equipment and the technology that we lack, and will help us to rebuild our military industry, which we will need later to launch victorious attacks on our suppliers. In other words, they will always work to prepare their own suicide.

Lenin's successors have said exactly the same thing in different words. Thus, the West has been put on warning: The technologies we give them today will be used against us tomorrow.

Despite these clear warnings, the West has continued on Lenin's road to suicide. We see a clear example of this in the Yamal Natural Gas Pipeline, where our Western European allies and Japan are negotiating with the Soviets to help construct and finance this huge undertaking.

Unfortunately, a number of American companies are already involved through their partial ownership of a major European gas distributor. If the pipeline is finally built, I fear that there will be additional American corporate involvement.

I can understand the desire of the Western Europeans to diversify their energy resources. Like the United States, they are also dependent on OPEC. However, to diversify by becoming more dependent on the Soviet Union is much like jumping from the frying pan into the fire. European dependence on Soviet energy could soon make our allies little more than puppets dancing to the Soviet tune.

As a member of the House Armed Services Committee, I am deeply disturbed over the implications for NATO. The threat of a natural gas cutoff to European homes and industry could add to the strains within NATO and further break down the political consensus needed for a strong military alliance. That would be disastrous for Western security.

There is another point that deeply concerns me. At a time when the Western energy infrastructure needs strengthening, how can we use our resources to build up the Soviety energy infrastructure? That to me is pennywise and pound foolish.

At a time when the Soviet military continues to grow in strength, the control over energy resources may be decisive in determining whether the West can maintain the upper hand. In World War II, the Allies controlled 86 percent of the world's oil, a factor that probably helped determine the outcome of that war. Today, the West imports over 70 percent of its oil from the volatile Persian Gulf area, a region we definitely do not control. To me, that last fact means one thing: We must become energy independent.

Our very security is at stake, Mr. Chairman. Increased reliance on the Soviet Union, however, does not help the West achieve energy independence; if anything, it will do the opposite. We must instead rebuild and expand the Western energy infrastructure.

COAL REPRESENTS ONE ALTERNATIVE

We have plentiful alternatives, but we need the will to pursue them. Coal represents one obvious alternative. In the United States we have coal reserves of about 438 billion tons, or the energy equivalent of 2 trillion barrels of oil. My own district in northeastern Pennsylvania produces anthracite coal, and I know the producers in my area are anxious to increase production and to increase their exports.

Unfortunately, despite European interest in purchasing increased amounts of coal, they are skeptical about our ability to deliver. Our rail and port facilities are sadly lacking. Thus, one first step to Western energy independence is to rebuild our transportation system so that we can actually deliver more coal to the Europeans.

The Europeans themselves have huge untapped resources of gas which they can develop. The development of Western Europe's own resources would be by far a more sane solution than dependence on a potentially unreliable supplier—dependence, if you will, on an enemy.

In fact, reliance by the Western Europeans on the Soviets could inhibit Western energy development, the very thing that we must strive to avoid. The board chairman of Mobil Oil's West German subsidiary recently stated that if the Yamal Pipeline is built as presently envisioned: "It won't be worth the investment for Western exploration firms to go out and develop new fields." According to him, exploration will be "set back by decades."

In addition, in a recent briefing paper, the Alaskan Northwest Natural Gas Transportation Co., which is interested in building a natural gas pipeline from Alaska to the Lower 48, claims that it is unlikely Western banks can finance both the Yamal Pipeline and the Alaskan Pipeline.

If Western investment capital is drained away by the construction of the Yamal Pipeline, valuable energy projects in the West may never be built. Thus, we would be left with the ludicrous situation of aiding the Soviets and sacrificing our own energy independence and security.

It is time for America and our Western allies to set energy independence as a primary goal. We can take the space program of the sixties as an inspiration to the energy program of the eighties.

With concerted efforts, we can achieve energy independence just, Mr. Chairman, as we put a man on the moon.

The pipeline deal represents a weakening of Western will. I shudder to think of the world my son will face if the pipeline is a precedent for the future. For his sake and for the sake of all Americans and their generations of children, we must refuse to take the road of suicide predicted by Lenin.

Instead, we must work to preserve our culture and our values, in conjunction with our allies. We must oppose the proposed Yamal Natural Gas Pipeline and future pipelines, and work toward our own energy independence.

You know, Mr. Chairman, I was thinking on the way over here that I'm kind of surprised that Herblock or Oliphant or one of the cartoonists hasn't come up with a cartoon that shows a fat, pudgy Brezhnev, smiling like a Cheshire cat, sitting in front of this big valve and European puppets dancing on strings; and he's wringing his hands and just waiting to cut off that valve or turn it on.

I hope that I haven't overdramatized the situation, Mr. Chairman, but, like you I am deeply concerned.

I thank you for the opportunity of expressing those concerns before your committee this morning.

The CHAIRMAN. I appreciate your willingness to testify. I certainly agree. An illustration of that kind sums it all up—giving them that power. We see what happened with a partial embargo, in this country, with OPEC nations. In this area particularly, with the long gas lines, we were involved. I don't understand the rationale, at all, of wanting so badly to spend this much money in the West to finance the pipeline, so the Europeans can become more dependent, particularly.

Some of the people—the Saudis—who cut us off in that way, are supposed to be our friends and our allies. I have not understood the rationale at all of putting our dependence upon acknowledged enemies.

I very much appreciate your testimony and thank you for coming today.

Mr. NELLIGAN. My pleasure, Mr. Chairman. I hope we are ultimately successful.

The CHAIRMAN. Thank you.

Next I'd like to invite to the table a panel comprised of the Honorable Robert Hormats, Assistant Secretary, Bureau of Economic and Business Affairs of the Department of State; the Honorable Richard Perle, Assistant Secretary for International Security Policy, Department of Defense; and the Honorable Lawrence Brady, Assistant Secretary, Department of Commerce.

STATEMENT OF ROBERT HORMATS, ASSISTANT SECRETARY, BUREAU OF ECONOMIC AND BUSINESS AFFAIRS, DEPARTMENT OF STATE

The CHAIRMAN. Gentlemen, we're happy to have you before us today. Mr. Hormats, would you like to begin?

Mr. HORMATS. Thank you, Mr. Chairman. I'm pleased to be here on behalf of the State Department. Mr. Rashish is still on his way home from Europe, where he held a series of consultations. I'm

sure he'd be delighted to fill you in on the details of those when he returns.

I will briefly summarize the key points in my statement and submit the rest for the record.

The CHAIRMAN. All of your statements will be appear in the record in full.

Mr. HORMATS. It is no secret that the United States has serious reservations about the proposed Western Siberia to Western Europe natural gas pipeline. Our strong concern is that this project crosses the threshold of a prudent level of European dependence on Soviet gas and risks making Europe vulnerable to Soviet leverage. The financial benefits to the Soviets through hard currency earnings from the sale of gas are of considerable importance to future Soviet economic planning.

EUROPEAN GOVERNMENTS WELCOME SALES OF EQUIPMENT

This is the point you made and the Congressman made as well. Many Europeans tend to see this project as enhancing their energy security by permitting them to diversify away from unpredictable supplies of oil. They believe that their energy preparedness arrangements will adequately protect them from any Soviet effort to exert political leverage Furthermore, European governments welcome the very significant associated sales of steel pipe and equipment for the pipeline, which they believe will boost some of their depressed industries.

We recognize that most European nations are much more dependent on imported oil than we are. We also recognize that the final decision on the pipeline will be Europe's to make, and the consequences of that decision for good or for ill will be felt primarily by Europeans. But we are Europe's friend and ally and, therefore, have expressed strong concerns about the pipeline and its implications for European vulnerability.

We also have concluded that objections alone are not likely to be effective and are, therefore, seeking to encourage a common assessment of the risk inherent in the pipeline, and a common approach to avoiding that risk. In our discussions we're making suggestions to the European countries of alternative ways in which European energy security can be enhanced. These include measure they can take on their own as well as those on which we and they can cooperate.

I would just like to say by way of history that over the last decade or so, as my testimony indicates in greater detail, the Europeans have made major efforts to reduce dependence on imported oil and to use more natural gas. Some of that natural gas has come from their own sources, Norway and Holland, for the most part. But the Europeans have also come to believe that European domestic reserves are going to be declining over the next several years and have, therefore, begun to look for imported sources of natural gas.

They have been importing natural gas from other parts of the world, including Algeria. They've been exploring other sources of imports. For a number of reasons they've been attracted to the Soviet alternative. These reasons are technical, financial and to a

degree, political. Soviet gas reserves are quite extensive. Soviet gas can be transported to Western Europe through a pipeline, and the European firms would benefit substantially from the building of that pipeline. Therefore, the Europeans have tended to see the Soviet Union as a relatively good source of natural gas. They have also told us that the Soviet natural gas would represent only a relatively small portion—6 percent—of overall European energy consumption.

Our view on this is quite different. We have a number of strong arguments which emphasize and underline the vulnerability which is implied in natural gas dependence on the Soviet Union. There are three areas of particular vulnerability which we have been stressing to the Europeans and I would like to stress here.

The general point is that the volume of Soviet gas as a percentage of total European energy consumption is not a sufficient indicator of economic and political vulnerability. This is true for three major reasons.

First, gas is a difficult fuel to replace on short notice, unlike oil, which now constitutes the bulk of Soviet energy exports. There is no spot market for gas. Gas trade requires large startup investments and pipelines. Furthermore, it is much more expensive and technically challenging to hold large strategic stocks of gas than it is to hold stocks of oil.

Second, certain regions will be very heavily dependent on Soviet gas and might apply strong pressure on national governments to avoid actions which could result in an interruption. In the event of an interruption, Soviet gas could not be readily replaced, unless there were excess capacity in other parts of the European energy grid.

Third, as noted above, residential and commercial consumers are particularly dependent upon gas. A cut off of Soviet gas would be particuarly onerous for these politically sensitive sectors. Thirty percent of the gas from the pipeline is earmarked for residential use. Residential and commercial consumers are the least able to absorb an abrupt fuel supply interruption. Homeowners have limited capacity to switch easily to another fuel. Furthermore, gas prices would probably rise precipitiously in the wake of a Soviet embargo and thus place a harsh financial burden on the homeowners and commercial business.

Hence, European vulnerability to Soviet gas leverage could be more substantial than the total energy share might lead one to believe. Recognizing this, users of Soviet gas would be likely to urge their governments to avoid any action which could provoke a Soviet cutoff or sharp price increase. It is this sort of leverage which, even without a direct Soviet threat of a cutoff of flows, could have an important impact on Western European political behavior.

It is important also to note that in the past the Soviet Union has on occasion used energy exports as a political lever. You, Mr. Chairman, have already indicated that in your statement. So the Soviets have demonstrated in the past a tendency to use energy as a lever, and there's no reason to believe they won't do it in the future.

It is, of course, difficult at this point to speculate on just how Soviet energy leverage might be applied at some future date. But it is not unreasonable to assume that the Soviets might attempt to exploit its energy relationship with Western Europe to seek political and/or economic benefits. Even in the current bargaining state, the Soviets have skillfully used the prospect of Soviet equipment purchases and gas sales to secure favorable terms and have gotten the Europeans to underwrite much of the risk.

I think you have today a curious situation, where the Europeans are selling the equipment and taking the financial risk of nonpayment for that equipment, as you pointed out. So you have a number of risks. You have the risk of an energy cutoff, and you have the risk to the European financial system of nonpayment, for the equipment has been provided on credit.

ALTERNATIVE SUPPLIES OF ENERGY

Let me just conclude without going into great detail, that we have put to the Europeans a number of alternatives. We believe there are alternative supplies of energy, which are at least as good economically and far better from the point of view of European security. There is no reason, for instance, why additional production cannot come from Western Europe itself. There are two countries which do have the capacity to produce more over the medium term. Then there are some areas of the world, particularly Nigeria, which have vast reserves of natural gas. I've had the pleasure of visiting the Bonny area of Nigeria, off Port Harcourt. Much of that gas is today being flared, wasted to the world. And the possibility of developing that natural gas, which would be economical and secure, is quite good.

That's the sort of project which we talked to the Western Europeans about.

I will conclude, leaving the discussion of export controls and other points to my colleague, by saying that today the world energy market has shifted rather dramatically. Expectations of likely demand and prices for natural gas have been scaled down quite dramatically over the last several years as consumers have used energy more efficiently. And I think today many of the supply assumptions on which this pipeline was originally predicated now are no longer valid. And I believe that this is beginning to dawn on the Europeans as well in the negotiations they're having.

Even as we speak of this pipeline, we know they're discussing the question of the pricing of the natural gas. It occurs to me that this pipeline was originally conceived in a period in which expectations for gas demand were increasing, and expectations for gas pricing were also increasing, but these expectations are now no longer valid. I believe this has begun to sow doubts in the minds of the Europeans themselves, and those doubts are being translated into the discussions they have with the Soviets.

We know for a fact that Soviet price expectations on this pipeline are absurdly high. Their expectation is to get a very favorable price formula. I believe that the change in the energy outlook has thrown a considerable crimp into that. At this point, the Europeans still have not resolved the question of the pricing of the natu-

ral gas. We don't know what the course of these negotiations will be, but I think the Europeans themselves are beginning to have doubts about the price.

Thank you, Mr. Chairman.

[Complete statement follows:]

TESTIMONY OF ROBERT D. HORMATS, ASSISTANT SECRETARY OF STATE FOR ECONOMIC AND BUSINESS AFFAIRS

THE YAMAL PIPELINE PROJECT

Introduction

It is no secret that the U.S. has serious reservations about the proposed Western Siberia to Western Europe natural gas pipeline. Our strong concern is that this project crosses the threshold of a prudent level of European dependency on Soviet gas, and risks making Europe vulnerable to Soviet leverage. And the financial benefits to the Soviets—through hard currency earnings—are of considerable importance in future Soviet economic planning.

Many Europeans, on the other hand, see this project as enhancing their energy security by permitting them to diversify away from unpredictable supplies of oil. They believe that their emergency preparedness arrangements will adequately protect them from any Soviet effort to exert political leverage. Furthermore, European governments welcome the very significant associated sales of steel pipe and equipment for the pipeline, which will boost depressed industries.

We recognize that most European nations are much more dependent on imported oil than we. We also recognize that the final decision on the pipeline is Europe's to make. And the consequences of that decision—for good or ill—will be felt primarily by Europeans.

But we are Europe's friend and Ally. We therefore have expressed strong concerns about the pipeline and its implications for European vulnerability. But we also have concluded that objections alone are not likely to be effective. We are therefore seeking to encourage a common assessment of the risk inherent in the pipeline and a common approach to avoid it. In our discussions, we are making suggestions to the European countries on alternative ways in which European energy security can be enhanced. These include measures they can take on their own, as well as those on which we and they can cooperate.

Under Secretary Rashish and an interagency team are now returning from Europe after consulting with our Allies on this subject. I am consequently not yet in a position to provide a detailed report on the European reaction. But I can give you some facts on the project and preliminary reactions.

The European natural gas market

Let's begin by reviewing the factors which caused the Europeans to look to Soviet natural gas as an energy alternative. During the 1970's, natural gas became an increasingly important fuel in European markets. A number of factors contributed to the expanded production and use of gas. Of particular importance were (1) the availability of substantial gas resources in and around the North Sea and (2) the economic and political volatility of international oil markets after 1973.

After the 1973 OPEC oil embargo, all industrial nations recognized that they had become excessively dependent on insecure and expensive supplies of imported oil. A central element of the energy policies of most industrial nations became the effort to reduce oil import dependence. This was especially so in Europe. Most European nations were—and remain—more dependent on oil imports than we. And, a larger share of Europe's oil imports came—and continue to come—from the volatile area of North Africa and the Gulf.

In order to reduce our common vulnerability, the United States took the lead in the setting up of the International Energy Agency (IEA) to cope with oil supply interruptions and to promote conservation and the development of alternative forms of energy. Both we and the European governments encouraged the use of gas, which in any event held a significant price advantage over oil throughout the decade. The volume of natural gas consumed in Western Europe increased by about 50 percent between 1973 and 1980. This growth rate substantially exceeded that of total energy demand; thus gas's share of the energy market increased rapidly. By 1980, gas accounted for approximately 14 percent of total Western European energy consumption and 18 percent of the energy consumption of the six countries (Austria, Belgium, France, Germany, Italy, and the Netherlands) currently involved in the Siberian pipeline negotiations.

Gas use grew most rapidly in the residential and commercial sectors, where consumption rose by nearly 80 precent between 1973 and 1979. Industrial gas use expanded much more slowly, but still increased by 27 percent in this period. It seemed to many that European consumers could use all gas made available to them.

The role of imported gas

Before the gas boom of the seventies, indigenous European production had met almost all European gas demand. Europe first began importing small amounts of gas in 1965. Total West European dependence on imported gas was less than 5 percent in 1973. But it zoomed to over 16 percent in 1980.

Growth in indigenous production, largely in the North Sea and the Netherlands, still satisfied more than half of the increased gas demand from 1973 and 1980. However, gas discoveries did not keep pace with rising consumption, and the expected life of known European reserves began to drop. Furthermore, Norway and the Netherlands, concerned about the economic and social impact of rapid energy development, adopted conservative production policies designed to extend the life of their reserves. Taking these factors into account, European Governments projected in 1980 that total European gas production would decline from about 18 billion cubic feet per day (BCF/D) in 1980 to about 16 BCF/D in 1990. The need for imported gas is expected to rise from about 3 BCF/D in 1980 to a projected 12 BCF/D in 1990.

Soviet gas

For a variety of technical, financial, and political reasons, the Soviet Union has seemed to the Europeans a promising source of imported gas. Soviet gas reserves are massive, more than one-third of total known world reserves. The Soviet gas can be shipped to Western European markets by overland pipelines, a cheaper and technically more reliable means than LNG tankers. Energy sales to Western Europe are an important source of Soviet hard currency earinings (over 50 percent in 1979), and help finance Soviet purchases of European machinery and manufactured products and technology. Expanded purchases of Soviet gas promise to generate major new orders and jobs for the ailing European steel and machinery industries. Finally, key European leaders view expanded East-West commerce as a means for building political ties and moderating Soviet behavior.

These factors help explain why Europeans have sought to conclude agreements to finance the proposed pipeline, to sell equipment for its construction and to purchase the gas transported by it. As you know, the Soviets and West Europeans are nearing completion of negotiations on a pipeline which could move roughly 4.0 billion cubic feet per day (BCF/D), or the equivalent of about 700,000 barrels of oil daily, into Western European market. Table A presents rough estimates of how European dependence on Soviet gas would grow from 1979 to 1990 if the pipeline were built to deliver 4 BCF/D.

With the 4 BCF/D pipeline, dependence on Soviet gas will be 6 percent or less of total energy consumption in all countries except Belgium and Austria. European dependence on oil and gas combined in 1990 is likely to be the same as for gas alone if, as we expect, Soviet oil exports to Western Europe are phased out over the decade. Rising imports of Soviet gas combined with falling oil imports from the Soviet Union would leave Western European dependence on Soviet energy, as a percentage of total European energy consumption, rougly at current levels.

European vulnerability

One could argue, and many European energy officials have, that projected levels of European dependence on Soviet gas are small. The Europeans conclude therefore, that the Soviets would not gain any real leverage as a result of this pipeline.

European officials further argue that their use of Soviet gas is a necessary part of their strategy to reduce their oil consumption and to diversify their sources of energy. They postulate that Soviet gas imports, by reducing their dependence on fuels from the Middle East, would, on balance, improve their overall energy security. They note that the Soviet Union has never in the past shut off energy shipments to West European countries for political reasons, and that Middle Eastern suppliers have. They believe that the Soviet Union is so dependent on energy exports for its foreign exchange receipts to pay for imports of grain and industrial goods that it cannot afford to cut off energy exports. They contend that the only immediate alternatives to increase Soviet gas imports would be continued dependence on oil and gas from what are perceived to be the least reliable Middle Eastern suppliers.

However, in our view, the volume of Soviet gas as a percentage of total European energy consumption is not a sufficient indicator of economic and political vulnerability. This is true for three major reasons.

First, gas is a difficult fuel to replace on short notice. Unlike oil, which now constitutes the bulk of Soviet energy exports, there is no spot market for gas. Gas trade requires large start-up investments in pipelines or LNG facilities. Furthermore, it is much more expensive and technically challenging to hold large strategic stocks of gas as compared to oil.

Second, certain regions will be very heavily dependent on Soviet gas and might apply strong pressure on national governments to avoid actions which could result in an interruption. In the event of an interruption, Soviet gas could not be readily replaced unless there were excess capacity in other parts of the European energy grid.

Third, as noted above, residential and commercial consumers are particularly dependent on gas. A cut-off of Soviet gas would be particularly onerous for these politically sensitive sectors. Thirty percent of gas from the pipeline is earmarked for residential use. Residential and commercial consumers are the least able to absorb an abrupt fuel supply interruption. Homeowners have limited capacity to switch easily to another fuel. Furthermore, gas prices would probably rise precipitously in the wake of a Soviet embargo and thus place a harsh financial burden on homeowners and commercial businesses.

Hence, West European vulnerability to Soviet gas leverage could be more substantial than the total energy share might lead one to believe. And recognizing this, users of Soviet gas would be likely to urge their governments to avoid action which could provoke a Soviet cut off or sharp price increases. It is this sort of leverage which, even without a direct Soviet threat to cut off flows, could have an impact on Western European political behavior.

It is important, also, to note that in the past the Soviet Union has on occasion used energy exports as a political lever, interrupting supplies to Yugoslavia, Israel, and China.

It is, of course, difficult to speculate on just how Soviet energy leverage might be applied in the future. But it is not unreasonable to assume that the Soviets might attempt to exploit its energy relationship with Western Europe to seek political and/or economic benefits. Even in the current bargaining stage, the Soviets have skillfully used the prospect of Soviet equipment purchases and gas sales to secure favorable terms and have gotten the Europeans to underwrite much of the risk.

Enhancing European energy security

Since 1978, when discussions on the pipeline project began, the economic factors affecting the pipeline have changed. Overall energy growth rates are down. European gas demand last year declined by 4 percent. Official estimates of future gas demand are being revised downward. In view of these developments, we question whether the European market needs this amount of additional Soviet gas and whether it cannot obtain more reliable supplies elsewhere.

We beleive that there are alternatives which could be more economic, and particularly more secure, than increased imports of Soviet gas. For example, Norway appears to have the resource potential to supply even larger amounts of gas to Europe during the next decade than it now does. In addition, Nigeria is pursuing plans to export substantial quantities of liquefied natural gas by the late 1980's.

Certain aspects of U.S. energy policy will increase the availability of oil and gas available on world markets. We have already decontrolled domestic oil prices and taken steps to accelerate leasing on Federal lands. We have a legislatively established program of natural gas price decontrol. These and other U.S. energy policy measures will reduce U.S. demand for oil and gas imports and leave more foreign oil and gas available to Europe. We also are prepared to increase exports of coal to Europe.

We have raised these considerations in our consultations with Europe. The Europeans have indicated that they wish to pursue these and other alternatives with us. But they have been firm in characterizing energy alternatives as supplementing—but not replacing—increased pipeline imports of Soviet gas.

Recognizing the need for emergency preparedness, the Europeans themselves are developing a mechanism to respond to interruptions through a safety net based on:

"Surge" production capacity for European (especially Dutch) natural gas;

Increased use of dual-fired boilers in electricity generation and industry, so as to permit emergency substitution of oil or coal for natural gas;

Significantly expanded reserves of stored gas; and

Better integration of the European gas grid.

The role of export controls

The issues raised by the pipeline are related to the more general question of our policy on the export to the Soviet Union of oil and gas equipment and technology. This Administration inherited a policy under which:

Some items of multiple use oil and gas equipment (e.g. computers) were under security controls; and

Equipment and technology specifically for oil and gas exploration and production were under foreign policy controls, with a general presumption to deny exports of technology of oil and gas equipment, and a presumption to approve exports of non-strategic end use equipment that is not subject to multilateral controls.

The Administration policy on this issue is under high level review. We are considering a number of options. During the Reagan Administration, no licenses for equipment or technology for use on this pipeline have been granted. The administration decision to approve a license for the export of 100 Caterpillar pipelayers stipulated that these pipelayers could not be used on the pipeline.

The U.S. has a limited unilateral ability to hinder the pipeline by denying key components for its construction. Equipment to be used in the construction of the pipeline is currently produced, or probably could be produced, by foreign equipment suppliers not subject to U.S. technology controls. A U.S. embargo on equipment for the pipeline could serve to delay the pipeline's completion, but we expect that delays will occur in any case, with or without a U.S. embargo. A unilateral U.S. embargo of equipment for the pipeline could spawn or speed up the creation of alternate suppliers of equipment in which the U.S. is currently the world leader. Nevertheless, this is a policy option open to us.

A multilateral equipment embargo towards the pipeline could be more effective in impeding the project. In this context, the cooperation of foreign equipment suppliers such as the U.K., Japan, France, Germany, and Italy would be crucial. However, it is questionable whether these countries would participate in a multilateral embargo. France, Germany, and Italy will buy the bulk of the pipeline's gas, and have already received large contracts to supply equipment for the project. It is unlikely that they would be willing to embargo equipment sales for the pipeline. Foreign suppliers who are not pipeline participants, such as the U.K., would be concerned about the risk of an open conflict with their European partners. Japan's participation in an embargo would likely depend on what Europe does.

Conclusion

The U.S., at the Ottawa summit, expressed its desire to expand the Western dialogue on energy security. We are discussing with our European partners alternatives to Soviet gas which would limit potential Soviet leverage and improve the security of energy supplies. In addition, we plan to continue to consider in the IEA, and in the Economic Summits coordinated long term energy supply strategies, which will provide Western countries attractive alternatives to further dependence on Soviet resources, and set a common Western understanding for energy trade with the Soviet Union. I am confident that a cooperative effort working towards complementary U.S. and European energy futures will be able to head-off potential tensions, and build a stronger and more stable economic foundation for the Western alliance.

In summary Mr. Chairman, let me repeat that the central element of our policy on the pipeline is our serious concern about its implications for European vulnerability to Soviet pressure and the economic benefits it provides to the Soviets.

We want to work with the Europeans to help them diversify their energy supplies, using alternatives which are more secure and economic than Soviet gas. We want to do this in a way which is based on a common assessment of the risk and a common approach to avoid it, and in a way which strengthens the U.S.-European relations rather than weakens them. This requires a process in which we raise our genuine and serious alliance security concerns, put forward suggestions, and attempt to help Europe to find alternatives and thus to minimize its vulnerability to Soviet leverage.

TABLE A.—WESTERN EUROPE: DEPENDENCE ON SOVIET GAS AS A PERCENTAGE OF TOTAL GAS CONSUMPTION AND OF TOTAL ENERGY CONSUMPTION

	1979		1990 [1] 4 bcf/d project	
	Gas	Energy	Gas	Energy
West Germany	14	2	29	6
France [2]	0	0	23-28	4
Italy	29	5	29	5
Netherlands	0	0	10	4
Belgium	0	0	32	8
Austria	59	12	82	18

[1] Based on individual government estimates of gas and total energy consumption.
[2] Contracted volumes of Soviet gas were delivered to Italy in exchange for Dutch gas until February 1980.
Source: Data from CIA.

The CHAIRMAN. Thank you, Mr. Hormats.

Mr. Perle, we're happy to have you with us today. It's strange to have you on that side of the table. Over the last few years I've been much more accustomed to your being on our side. I just hope you haven't been a bureaucrat long enough that you have lost your perspective of independence from your experience on the Hill. We'd be happy to hear from you now.

STATEMENT OF RICHARD PERLE, ASSISTANT SECRETARY FOR INTERNATIONAL SECURITY POLICY, DEPARTMENT OF DEFENSE

Mr. PERLE. Thank you very much, Mr. Chairman. I'm pleased to appear before this committee today——

The CHAIRMAN. See, I didn't get an answer.

Mr. PERLE. You're going to get an answer in a minute. I am here to discuss the views of the Department of Defense on the proposed pipeline to convey Soviet natural gas to Western Europe. As you noted, having spent more than 10 years preparing for hearings such as this from your side of the table, I appreciate more than most the value of a full exchange between the two branches of Government. It's a process of mutual education, and a sharing of ideals, analysis and concerns. I am convinced that the public policy that emerges from hearings such as this and from consultation between us generally is better and more balanced than either of us can expect acting alone.

And after hearing your introductory remarks, I'm even more persuaded of that.

The Department of Defense is seriously concerned about the effect of increased Western dependence on Soviet energy, on the strength and cohesion of the Western alliance. We believe that the increasing dependence of our European allies on Soviet energy, and especially natural gas, will weaken the alliance politically and militarily, shifting an already adverse military balance still further in the direction of a Soviet advantage and threatening the unity of purpose on which our collective security ultimately depends.

DECISION RESTS WITH WESTERN ALLIANCE

Before I explain our concerns in more detail, I just want to take a moment to comment on the attitude of our allies toward this

issue. In the final analysis it is upon their judgment that the decision to contain or expand their dependence on Soviet energy will turn. We can advise, we can explain, we can take action that will make the costs of Soviet energy higher, and the costs of non-Soviet alternatives lower. But we cannot decide the energy policies for France, Germany, or the Netherlands in Washington, D.C.

The oil embargo of 1973 stunned the Western industrial world. It brought home with an immediacy that grave forecasts were never able to summon, and there were such forecasts, the danger of reliance on a small number of suppliers, who were willing to use their near monopolistic market position for political as well as economic purposes, together with increasing energy prices, which have made previously prohibitive energy development projects commercially attractive. The desire to reduce dependence on OPEC has been the driving force behind the search for diversified sources of imported energy.

In their desire to diversify, it is hardly surprising our European allies should have considered increasing their import of energy from the Soviet Union. After all, it was for several years American policy to encourage trade between East and West, in the belief, now so demonstrably mistaken, that as trade increased, Moscow's hostility would diminish. Moreover, it seemed like a natural symbiosis. The Soviets have large unexplored reserves of natural gas, but lack the technology and capital to develop them.

The Europeans, on the other hand, have the capital and some of the requisite technology, but lack the reserves. Moreover, the Soviets have become desperately short of hard currency reserves with which to finance imports, including high technology and grain and capital equipment from the West, while the Western economies were searching for new outlets for their products. In short, the logic behind large scale Western investment in Soviet energy seemed self-evident. It began to gather momentum.

In all of this there was and is an important political dimension. Many Europeans, particularly of the left, saw an emergence of an energy relationship with the Soviets as a useful device for fostering détente, and détente, in turn, was seen as a process that could transform an essentially hostile relationship between East and West into a more cordial and less volatile political arrangement that would lessen the need for burdensome defense budgets.

In Germany especially, these elements fit neatly together with the political vision of the left wing of the Social Democratic Party, a vision captured by the German term, Ostpolitik, which become a prominent feature of German social policy. In describing this European view of the matter, I use the past tense deliberately, for much of the seeming logic of the situation has changed, and it has changed much faster than attitudes that were rooted in it, with the results that the case for broadening the Soviet European energy relationship has grown much weaker, at just the moment that deals long in the making are finally crystalizing. What has changed? And how do these changes bear on the way we ought to view such large energy projects as the West Siberian pipeline?

First, the sense of urgency that accompanied the search for additional sources of energy in the aftermath of the 1973 embargo and through several years in which supplies were short has given

way to the relative calm of the current situation, in which there is something of an energy glut. Rising prices have both diminished the rate at which the demand for energy has been growing, and they have stimulated new exploration and new technologies that promised to relieve the market pressures in the mid-1970's. Nowhere is this more dramatic than with respect to the demand for natural gas in Europe, which actually declined by 4 percent last year, after several years of rapid growth.

Second, the notion that an increased volume of trade would lead to a lessening of political conflict and diminished Soviet emphasis on military power has been disproved. Political conflict has continued, largely unabated. The growth of Soviet military power has been relentless. Afghanistan has been invaded and continues to be occupied by Russian troops. Poland struggles to find a workable internal political order in the shadow of Soviet, Czech, Hungarian, and East German divisions. A yellow rain of toxic agents has descended on hapless tribesmen in Southeast Asia.

The principles of relations between the United States and the Soviet Union that were documented in treaty form in the heyday of détente have been transformed beyond recognition and have come in reality to resemble nothing quite so much as the Soviet policies of the cold war. It is simply no longer convincing to suggest that trade will moderate Soviet behavior or deflect it from its buildup of military power. If anything, the reverse has proven true. Increased trade has enabled the Soviet Union to accomplish its military expansion faster and at lower cost, as Western technology and industrial assistance has become increasingly available to them.

Third, the notion that the West lacked energy reserves to exploit and was compelled, therefore, to turn to the Soviet Union to diminish dependence on OPEC has been disproved, first, by the development of North Sea energy resources by the United Kingdom and Norway, then by the emergence of a large number of new potential sources in such places as the Netherlands, Nigeria, Canada, Alaska, and the lower 48 States.

It now appears questionable whether Western Europe needs to import natural gas from the Soviet Union on anything like the scale of the West Siberian pipeline's 35 billion cubic meters per year, if indeed, there is any requirement at all for turning east to satisfy Europe's requirements.

SECURITY IMPLICATIONS OF THE SIBERIAN PIPELINE

The Department of Defense has a number of specific concerns about the security implications of the West Siberian pipeline. Let me enumerate them. First, it will generate substantial hard currency earnings for the Soviet Union that will finance a number of Soviet developments inimical to our interests. With the pipeline in full operation, several billion dollars annually will flow into the Soviet treasury. Five billion dollars per year in constant 1980 dollars is a minimum estimate, and it could go much higher. A significant part of these earnings will go to strengthen the Soviet military. These revenues will facilitate the purchase in the West of

sophisticated Western technology, much of which will support the modernization of the Soviet military industrial establishment.

Second, the revenues available to the Soviets will help to forge an economical link with Europe that will inevitably increase Moscow's influence among our allies. There is not a Senator on this or any other committee who does not feel an obligation to do what he can to promote the well-being of his constituents. That is as it should be. But the same holds true of governments and parliamentarians in the democracies of Europe. A centrally controlled economy like the Soviet Union can place orders where it likes and where jobs and profits in Europe emanate from Moscow, it would be naive to believe that politics will stay far behind.

This will hold true day to day, even when the gas is flowing without interruption from fields in Siberia to homes in Bavaria.

DANGEROUS VULNERABILITY

Third, we believe Europe will incur dangerous vulnerability to the interruption of supplies of natural gas from the Soviet Union. Gas pipelines create dependency because they are dedicated facilities, tied into an elaborate infrastructure of delivery networks and distribution facilities.

A significant proportion of the gas that will flow through the pipeline will heat private homes in the recipient countries, especially Germany. In some regions, virtually all the homes and many industries will lack reliable substitutes for Soviet natural gas.

Unlike oil or coal, for which there exists spot markets that can respond to short-term requirements, there is no ready alternative to fixed and long-term supply arrangements with respect to natural gas delivered through dedicated pipelines.

The dependency about which we are concerned will reach significant proportions especially in some regions. With the pipeline in operation, some 30 percent or more of the natural gas consumed in Germany will come from the Soviet Union. That, in our judgment, is a dangerously high level.

We have to anticipate that, in a crisis, the Soviets might interrupt the flow of gas to achieve political purposes. They have done so before, as the Israelis, the Yugoslavs, and the Chinese have learned, to their regret.

I think, Senator, you added some other countries that have learned an unhappy lesson.

Even as I speak, the Soviets are bringing political pressure to bear on Poland through a combination of political, economic, and military means. Among them has been the manipulation of energy supplies to Poland as the temperature drops toward winter and Polish industry must plan its winter production.

But even in the absence of crisis severe enough to lead to a Soviet cutoff, there is the day-to-day influence that must flow, like the gas itself, through a pipeline to which there will be no practicable alternative.

Practical men will find alternatives to angering their supplier more easily than they will find new suppliers.

Whether one calls it sensitivity or solicitousness or simply reality, is there any doubt that our allies listen more carefully to kings and rulers who supply them with energy than to those who do not?

Fourth, we believe that in addition to the political and energy vulnerability inherent in the West Siberian pipeline, there will be a weighty financial vulnerability as well. Virtually all the risk associated with a substantial capital investment in the project will be borne by Western banks. Their loans, which are heavily subsidized by interest rates on the order of 7½ percent, will be repaid from downstream earnings from the pipeline itself.

The creation of a community of interest between Western banking circles and the Soviet Government is hardly what is needed to arrest the troubling neutralist intent that we detect in some European countries.

Moreover, the fact that Western banks, rather than the Soviet Government, will bear the risk will put the Soviets in a commanding position with respect to any renegotiation of terms in the outyears.

My bank has rather a lot of influence on me, as one of its smaller customers. Its largest industrial borrowers have rather a lot of influence on it. This is a commonplace that we understand well at home, and it applies as well abroad.

Fifth, a capital project on the scale of the West Siberian pipeline, along with the Soviet capture of a significant Western European market, will displace potential investment in safer Western alternatives.

Projects in Nigeria, Algeria, Norway, Cameroon, Canada, and the United States will all be less likely to attract the capital they need and acquire the markets they could otherwise develop if the pipeline goes forward.

We believe it would be safer and better to strengthen the bonds among friends, rather than deepen Western dependency on our adversaries.

Finally, we have serious doubts about the economics of the West Siberian pipeline. While the final price negotiations have not yet taken place, we believe that there is a serious chance that the German housewife will, in the long run, end up paying more for Soviet gas than she would have to pay for available alternatives.

The infusion of politics into the bargaining will deprive market forces of their leveling influence. The Soviets know it and can be expected to make the most of it.

Mr. Chairman, in closing, I should say a word about what we believe ought to be done.

The President at Ottawa made known our concerns. This administration is opposed to the West Siberian pipeline and has tried—although not always with blinding clarity—to make that opposition known.

We can and should do more. We have offered to discuss alternative supplies and to work to develop them. In some places, this offer has been preemptorily rejected. But in others, we believe there is still room to make our case.

WITHHOLD AMERICAN TECHNOLOGY

Moreover, we can—and, in my judgment, should—withhold American technology from the pipeline in every case where such action will underline our opposition and make available alternatives more attractive.

If we fail and the pipeline is built, we will have to redouble our efforts to contain the diffusion of that technology to the East that is certain to follow from the greatly increased hard currency the Soviets will find at their disposal.

The CHAIRMAN. Thank you very much, Mr. Perle.

Mr. Brady.

STATEMENT OF LAWRENCE BRADY, ASSISTANT SECRETARY, DEPARTMENT OF COMMERCE

Mr. BRADY. Thank you, Mr. Chairman.

It's also an honor and a privilege for me to be here this morning to discuss the strategic implications of the proposed pipeline and East-West energy cooperation in general.

The subject goes, I believe, to the heart of East-West relations, which are now at a new stage in their development.

In my brief statement today, I will focus on those issues connected with the Siberian pipeline and the larger question of East-West energy cooperation that I feel are most crucial.

They are:

First, the issues connected with the licensing of oil and gas equipment sales to the Soviet Union, both for the Siberian pipeline and for Soviet energy development as a whole.

And second, the possible and probable foreign policy reasons for Soviet emphasis on building a new natural gas pipeline to Europe at this time.

I would like to emphasize, however, that the national security, economic, and foreign policy implications of Soviet-European energy interdependence should be carefully analyzed during this period of policy formation.

The economic and commercial motives for the Europeans' pursuit since early 1980 of a new natural gas project with the Soviet Union appear very compelling on first examination.

The Europeans would like to rapidly diversify their energy supply away from the Middle East, as they told us last week. They would like to develop the most economical source of energy they can get within the shortest period of time.

In addition—and this should be stressed—many thousands of jobs will be generated by sales of pipeline construction and gas-pumping equipment to the Soviets for constructing the pipeline and any future infrastructure for which the Soviets intend to use Western equipment and technology.

AMERICAN EQUIPMENT EXPORT CONTROL POLICIES

Americans companies also hope to obtain some of these contracts for oil and gas equipment sales to the Soviet Union. At the moment, oil and gas equipment exports to the Soviet Union are controlled, for foreign policy reasons, under the authority vested in the Department of Commerce by the Export Administration Act.

There are three important issues affecting these control policies which deserve careful review. They are:

First, the rate at which Soviet energy resources should be developed with Western assistance.

Second, the configuration of international markets for sophisticated oil and gas equipment.

And third, the contribution Western oil and gas equipment could make to the expansion of the Soviet energy infrastructure and thereby to Soviet military capabilities.

The first issue I would like to discuss in connection with the licensing of oil and gas equipment is the implication for Western security of the rate at which Soviet energy resources are developed. The important consideration is whether the Siberian gas development will delay the development of Western coal and other world energy resources over the next 10 to 15 years. Authoritative projections show world energy demand leveling off through the 1980's and a cushion developing between overall supply and demand.

If these projections are essentially correct, then extensive Western investment in Soviet energy over the next 5 years could very well create a supply that competes and may prevent the development of energy alternatives from Third World, European, and U.S. locations.

Developments in the next 10 years will be crucial in determining the pattern of world energy markets for decades to come.

This is the period encompassed in a Soviet 15-year plan which ends in 1990. During this period, the Soviet Union plans to unlock Siberian resources and to maximize Soviet energy power, both at home and in the world market. It is, of course, quite convenient for the Soviet leaders that Afghanistan is now delivering all of its natural gas supplies to the Asian sections of the U.S.S.R., which relieves them of the need to divert exportable supplies to that area of their huge country.

The second crucial issue in licensing oil and gas equipment is foreign availability from other industrial nations. Foreign availability is always changing with new designs and improvements made by competing international firms. However, U.S. companies produce equipment for oil and gas development that in many instances may outperform equipment produced by other industrial countries that, in theory, is nearly the same.

The Department of Commerce is still investigating the ability of the United States to unilaterally restrict the transfer of equipment required for the Siberian pipeline. In fact, a case has already arisen in connection with Siberian pipeline that has heightened our concern about the impact of this project on the multilateral export control system.

The Soviets are negotiating with France for highly sophisticated computerized flow control equipment to be used for the entire Soviet gas industry and not solely for the Siberian project. These computers, however, are contained on the CoCom multilateral export control list.

This is the Soviet Union's first test of CoCom restrictions in connection with the rapid development of its natural gas resources with Western assistance. This is a serious matter and a source of

great concern, both to us and France, which must handle the requests in CoCom.

The current export control policy on oil and gas equipment to the Soviet Union has been in effect since 1978. Under current policy, there is a presumption of denial for applications to export industrial technology for oil and gas production and exploration equipment. There is a presumption of approval for most oil and gas and use equipment. The Reagan administration is currently conducting a review of this policy.

The third area of concern in connection with licensing the sale of this equipment to the U.S.S.R. is its contribution to Soviet economic and military capabilities. Energy shortages in the U.S.S.R. in the 1980's would impose serious constraints on the Soviet economy and quite possibly on their military potential. We are facing a 10-year window of opportunity in which the Soviet Union may attempt to assert essential military superiority over the United States. Our commerce with the Soviet Union should be carefully managed so as not to contribute to that superiority.

These three considerations, displacement of other energy development for which the West could also build infrastructure and create jobs and income, uncertainty about the foreign availability of oil and gas equipment, and the contribution of rapid Soviet energy development to its economic and military capabilities are inextricably involved in the sale of oil and gas equipment for East-West energy cooperation.

This Government is now in the process of considering these issues and trying to come to a decision on a policy toward U.S. sales of oil and gas equipment to the Soviet Union. There are additional economic and political issues related to the development of Soviet energy resources that deserve careful review.

DANGERS OF SOVIET DEPENDENCY

Two great dangers exist for the West if it becomes dependent on the Soviet Union for a considerable portion of its energy supplies.

One is that the U.S.S.R. can bring pressure to bear on Western goverments by simple virtue of the fact that it is a major supplier of a vital raw material. This allows the Soviet Union to try to influence the foreign policies of its energy clients. An implicit threat of denial or price increase always exists.

The second danger is that the U.S.S.R. would attempt to use the large surpluses of hard currency earned from energy exports to manipulate the workings of the western commercial and financial system.

For example, if the West European nations begin to run substantial energy-related deficits with the U.S.S.R., as they do today with OPEC, the U.S.S.R. may be able to capitalize on the desire of business and governments to recycle the Soviet Union's hard currency reserves. Pressure could be brought to bear on the CoCom nations to increase their export of high-technology items to Soviet bloc markets. In other words, the U.S.S.R. would be tempted to use its leverage to weaken the entire voluntary CoCom structure.

More than this, such large supplies of hard currency could give the Soviet Government potentially significant competitive advantages over Western companies and financial institutions.

The U.S.S.R. could also use its hard currency surpluses to intervene in western monetary and banking systems.

These are the economic considerations connected with the licensing of U.S. oil and gas equipment for the Siberian gas pipeline and Soviet energy development as a whole, which I feel are most crucial for the U.S. Government's decisions.

I will turn now, in my statement, to a review of what I believe to be the very important considerations in the context of Soviet foreign policy motives for building the pipeline itself.

During the past decade, the United States and its allies allowed their trade with the Soviet bloc to flourish on the assumption that more extensive commercial ties would lead to a liberalization in Soviet foreign and domestic policies. I think we sometimes forget that the domestic issue was involved. Today, however, there is little or no evidence that these assumptions were even remotely correct.

Western public opinion still denounces human rights infringements inside Soviet borders. Each day brings additional evidence that the Soviets are behind new disruptions in stability. Even though Western exports to the six East European nations and the Soviet Union came to a total of $42.5 billion in 1980, Soviet actions in the international theater during the 1970's have only succeeded in challenging rather than confirming the political assumptions behind economic détente.

The U.S.S.R. and its satellites have used transfers of Western technology during the 1970's, financed in large part with official and private Western credits, to accomplish several major goals which now threaten the security of the free world.

First, the Soviet bloc nations have accelerated the modernization of their defense-oriented industries with imported technology, particularly in the computer, semiconductor, chemical, and heavy vehicle manufacturing sectors.

Second, these nations have increased their commercial and diplomatic influence in strategic areas of the Third World.

Third, these nations have used Western technology to build Warsaw Pact forces and to invade other countries, as well as to support local terrorism and revolution in the Third World.

When the Soviets invaded Afghanistan in December 1979, using trucks manufactured with infusions of U.S. and European equipment and technology, the United States reacted by imposing tight restrictions on its military-significant, high-technology exports and a partial embargo on grain shipments to the Soviet Union.

The United States was the leader in using the embargo as a clear political symbol and expression of its displeasure and of its ability at any time to rescind the benefits of economic interdependence.

The U.S.S.R., however, has been careful to minimize its vulnerabilities to Western economic pressure. They are producing their own versions of imported agricultural and industrial technologies as quickly as possible. And if they cannot develop the technology, they take it from the East Europeans if they have it or they steal it from the West.

Yet, the most recently proposed East-West economic project, the Siberian pipeline—which is the largest example of East-West collaboration to date—will firmly ensconce the Europeans in what may be an irrevocable dependency on Soviet energy supplies.

The concern here is not that the Soviets will cut off these supplies to the Europeans, it is rather that they will continue to increase them and use this relationship for political purposes.

We are truly entering a decade of significant political-economic pressures and problems in the area of East-West trade.

The successful implementation of the Soviet 11th and 12th 5-year plans will increase the U.S.S.R.'s leverage over world energy markets and enhance Soviet political power in the world community.

Important foreign policy goals are built into the plan to build a 3,000-mile gas pipeline to Europe by 1985 and to tap the vast supplies of Soviet gas within the next 10 years.

Soviet leaders understand well how to use economic power to assert foreign policy influence over other social and political systems. Western investment in Soviet energy development during the 1980's will permit the U.S.S.R. to apply its philosophy of competition and cooperation at the submilitary level, especially in Europe and the Third World, with the goal of fostering the advancement of Marxism.

Soviet leaders know that the future of the U.S.S.R. as a world power depends upon the accelerated development of Siberia's vast natural gas resources.

One reason why the Soviets are now accelerating their energy export program is that the turmoil in the Middle East makes Soviet energy more attractive to the Europeans. This is a prime opportunity for the Soviet Union to capture a new source of leverage over the West before alternative sources in Europe, the United States, and Africa have been developed.

If the Soviets do not succeed in this 5-year plan, the West and the non-Communist Third World may succeed in diversifying energy supplies among friendlier nations.

Moreover, if the West were able to develop dependable, non-Soviet sources of coal, gas, and synthetic fuels, the U.S.S.R. would not be able to find a large hard currency market for their gas for many years to come.

To conclude, the West should continue to spur the development of alternative energy resources. Western coal, synthetic fuel, and natural gas supplies can all be made economically feasible within a relatively short time and could be substituted for Siberian natural gas.

The Soviet Union has not behaved in the international community in a way which would justify rewarding it with additional foreign policy leverage.

The West must cooperate with caution in its East-West relationships if it is to avoid giving the Soviet Union the power to undermine the economic and political values of the free world.

[The complete statement follows:]

STATEMENT OF LAWRENCE J. BRADY, ASSISTANT SECRETARY OF COMMERCE FOR INTERNATIONAL TRADE ADMINISTRATION

It is an honor and a privilege to be here, Mr. Chairman, to discuss the strategic implications of proposed large-scale East-West relations, which are now at a new stage in their cumulative development. The Soviet Union today is a much stronger nation than it was ten years ago. We must bear this in mind as we discuss the wide range of complex and controversial issues surrounding the building of a major natural gas pipeline from Northern Siberia to the heartland of Europe. Because we cannot always be sure whether the East-West relationship is one of sharp competition or cooperation, we must be wary of assuming that any vital aspect of that relationship can be left to develop by itself, without the careful stewardship of the Government and the Congress.

In my brief statement here today, I will focus on those issues connected with the Siberian gas pipeline and the larger question of East-West energy cooperation that I feel are most crucial. They are: first, the issues connected with the licensing of oil and gas equipment sales to the Soviet Union, both for the Siberian pipeline and for Soviet energy development as a whole; and, second, the possible and probable foreign policy reasons for Soviet emphasis on building a new natural gas pipeline to Europe at this time. I would like to emphasize, however, that the national security, economic, and foreign policy implications of Soviet-European energy interdependence should be carefully analyzed during this period of policy formation.

ECONOMIC CONSIDERATIONS FOR THE WEST

The economic and commercial motives for the Europeans' pursuit, since early 1980, of a new natural gas project with the Soviet Union appear compelling on first examination. The Europeans would like to rapidly diversify their energy supply sources away from the Middle East. They would like to develop the most economical source of energy they can get within a short time frame. In addition, many thousands of jobs will be generated by sales of pipeline construction and gas pumping equipment to the Soviets for constructing the pipeline and any future infrastructure for which the Soviets intend to use Western equipment and technology.

American companies also hope to obtain some of these contracts for oil and gas equipment sales to the Soviet Union. Nevertheless, oil and gas equipment exports to the Soviet Union are now controlled for foreign policy reasons under the authority vested in the Department of Commerce by the Export Administration Act.

There are three important issues affecting these control policies which deserve careful review. They are:

First, the rate at which Soviet energy resources should be developed with Western assistance;

Second, the configuration of international markets for sophisticated oil and gas equipment; and,

Third, the contribution Western oil and gas equipment could make to the expansion of the Soviet energy infrastructure and to Soviet military capabilities.

The first issue I would like to discuss in connection with the licensing of oil and gas equipment to the USSR is the implication for Western security of the rate at which Soviet energy resources are developed. The important consideration is whether Siberian gas development will delay the development of Western coal and other world energy resources over the next 10 to 15 years. Authoritative projections show world energy demand leveling off through the 1980's and a cushion developing between overall supply and demand. If these projections are essentially correct, then extensive Western investment in Soviet energy over the next 5 years could very well create a supply that competes with and may prevent the development of energy alternatives from Third World, European, and U.S. locations.

Developments in the next 10 years will be crucial in determining the pattern of world energy markets for decades to come. This is the period encompassed in a Soviet Fifteen-Year Plan which ends in 1990. During this period, the Soviet Union plans to unlock Siberian resources and to maximize Soviet energy power, both at home and in the world market. It is, of course, quite convenient for Soviet leaders that Afghanistan is now delivering all of its natural gas supplies to Asian sections of the USSR, which relieves them of the need to divert exportable supplies to that area of their huge country.

The second crucial issue in licensing oil and gas equipment is foreign availability from other industrial nations. Foreign availability is always changing with new designs and improvements made by competing international firms. However, U.S. companies produce equipment for oil and gas development that, in many instances, far out-performs equipment produced by other industrial countries that in theory is

nearly the same. The Department of Commerce is still investigating the ability of the United States to unilaterally restrict the transfer of equipment required for the Siberian pipeline.

In fact, a case has already arisen in connection with the Siberian pipeline that has heightened our concern about the impact of this project on the multilateral export control system. The Soviets are negotiating with France for highly sophisticated computerized flow control equipment to be used for the entire Soviet gas industry—and *not* solely for the Siberian project. These computers, however, are contained on COCOM's multilateral export control list. This is the Soviet Union's first test of COCOM restrictions in connection with the rapid development of its natural gas resources with Western assistance. This is a very serious matter, and a source of great concern both to us and France, which must handle the request in COCOM.

It is quite clear that the development of Soviet energy resources and the sale of so-called "oil and gas" equipment, may well become a COCOM security issue.

The current export control policy on oil and gas equipment to the Soviet Union has been in effect since 1978. Under current policy, there is a presumption of denial for applications to export industrial technology for oil and gas production and exploration equipment. There is a presumption of approval for most oil and gas end-use equipment. The Reagan Administration is currently conducting a review of this policy.

The third area of concern in connection with licensing the sale of this equipment to the USSR is its contribution to Soviet economic and military capabilities. Energy shortages in the USSR in the 1980's would impose serious constraints on the Soviet economy and, quite possibly, their military potential. In addition, the military contribution of oil and gas equipment in high technology areas could be of great concern. We are facing a 10-year window of opportunity in which the Soviet Union may attempt to assert essential military superiority over the United States. Our commerce with the Soviet Union should be carefully managed so as not to contribute to that superiority.

These three considerations—displacement of other energy development for which the West could also build infrastructure and create jobs and income; uncertainty about foreign availability of oil and gas equipment; and the contribution of rapid Soviet energy development to its economic and military capabilities—are inextricably involved in the sale of oil and gas equipment for East-West energy cooperation. This Government is now in the process of considering these issues and trying to come to a decision on a policy toward U.S. sales of oil and gas equipment to the Soviet Union.

There are additional economic and political issues related to the development of Soviet energy resources that deserve careful review. Two great dangers exist for the West if it becomes dependent on the Soviet Union for a considerable portion of its energy supplies. One is that the USSR can bring pressure to bear on Western governments by simple virtue of the fact that it is a major supplier of a vital raw material. This allows the Soviet Union to try to influence the foreign policies of its energy clients. An implicit threat of denial or price increase always exists.

The second danger is that the USSR would attempt to use the large surpluses of hard currency earned from energy exports to manipulate the workings of the Western commercial and financial system. For example, if the West European nations begin to run substantial energy related deficits with the USSR, as they do today with OPEC, the USSR may be able to capitalize on the desire of business and governments to recycle the Soviet Union's hard currency reserves. Pressure could be brought to bear on the COCOM nations to increase their exports of high technology items to Soviet Bloc markets. In other words, the USSR would be tempted to use its leverage to weaken the entire voluntary COCOM structure.

More than this, such large supplies of hard currency could give the Soviet government potentially significant competitive advantages over Western companies and financial institutions. The Soviet Union is an avowed enemy of the free market system and could gradually break down the structure of the marketplace by forcing Western corporations to compete with East European and Soviet industries. The USSR could also use its hard currency surpluses to intervene in Western monetary and banking systems.

These are the economic considerations connected with the licensing of U.S. oil and gas equipment for the Siberian gas pipeline and Soviet energy development as a whole, which I feel are most crucial for the U.S. government's decision. I will turn now in my statement to a review of what I believe to be very important considerations in the context of Soviet foreign policy motives for building the Siberian pipeline.

WESTERN ECONOMIC SUPPORT FURTHERS SOVIET FOREIGN POLICY GOALS

During the past decade, the United States and its allies allowed their trade with the Soviet Bloc to flourish on the assumption that more extensive commerical ties would lead to a liberalization in Soviet foreign and domestic policies. Today, however, there is little or no evidence that these assumptions were even remotely correct. Western public opinion still denounces human rights infringements inside Soviet borders. Each day brings additional evidence that Soviet machinations are behind new disruptions in world stability, even though Western exports to six East European nations and the Soviet Union came to a total of $42.5 billion in 1980. Soviet actions in the international community during the 1970's have only succeeded in challenging rather than confirming the political assumptions behind "economic détente."

The USSR and its satellites have used transfers of Western technology during the 1970's, financed in large part with official and private Western credits, to accomplish several major goals which now threaten the security of the Free World:

First, the Soviet Bloc nations have accelerated the modernization of their defense-oriented industries with imported technology, particularly in the computer, semiconductor, chemical, and heavy vehicle manufacturing sectors.

Second, these nations have increased their commercial and diplomatic influence in strategic areas of the Third World.

Third, these nations have used Western technology to build Warsaw Pact forces and to invade other countries as well as to support local terrorism and revolution in the Third World.

When the Soviets invaded Afghanistan in December 1979, using trucks manufactured with infusions of U.S. and European equipment and technology, the United States reacted by imposing tight restrictions on its military-significant high technology exports and a partial embargo on grain shipments to the Soviet Union. The United States was the leader in using the embargo as a clear political symbol and expression of its displeasure, and of its ability at any time to rescind the benefits of economic interdependence.

The USSR, however, has been careful to minimize its vulnerabilities to Western economic pressure. They are producing their own versions of imported agricultural and industrial technologies as quickly as possible—and if they cannot develop the technology, they take it from the East Europeans or steal it from the West. Yet, the most recently proposed East-West economic project—the Siberian pipeline, which is the largest example of East-West collaboration to date—will firmly ensconce the Europeans in what may be an irrevocable dependency on Soviet energy supplies. The concern here is not that the Soviets will cut off these supplies to the Europeans. It is rather that they will continue to increase them, and use this relationship for political purposes. We are truly entering a decade of significant political-economic pressures and problems in the area of East-West trade.

The successful implementation of the Soviet Eleventh and Twelfth Five-Year Plans will increase the USSR's leverage over world energy markets, and enhance Soviet political power in the world community. Important foreign policy goals are built into the plan to build a 3,000 mile gas pipeline to Europe by 1985 and to tap the vast supplies of Soviet gas within the next ten years. Soviet leaders understand well how to use economic power to assert foreign policy influence over other social and political systems. Western investment in Soviet energy development during the 1980's will permit the USSR to apply its philosophy of competition and cooperation at the sub-military level, especially in Europe and the Third World, with the goal of fostering the advancement of Marxism. Soviet leaders know that the future of the USSR as a world power depends upon accelerated development of Siberia's vast natural gas resources.

One reason why the Soviets are now accelerating their energy export program is that the turmoil in the Middle East makes Soviet energy more attractive to the Europeans. This is a prime opportunity for the Soviet Union to capture a new source of leverage over the West—before alternative sources in Europe, the United States, and Africa have been developed. If the Soviets do not succeed in this Five-Year Plan, the West and the non-communist Third World may succeed in diversifying energy supplies among friendlier nations. Morevoer, if the West were able to develop dependable non-Soviet sources of coal, gas and synthetic fuels, the Soviets would not be able to find a large hard currency market for its gas for many years to come.

To conclude, the West should continue to spur the development of alternative energy resources. Western coal, synthetic fuel, and natural gas supplies can all be made economically feasible within a relatively short time and could be substituted for Siberian natural gas. The Soviet Union has not behaved in the international

community in a way which would justify rewarding it with additional foreign policy leverage. The West must cooperate with caution in its East-West relationships if it is to avoid giving the Soviet Union the power to undermine the economic and political values of the Free World.

The CHAIRMAN. Thank you very much, gentlemen.

Before we turn to questions, I would like to ask Senator Heinz if he has any remarks he wishes to make.

Senator HEINZ. Mr. Chairman, thank you very much. First, I do want to commend you for calling this hearing on what is inherently a profound subject.

I will put my opening statement in the record.

STATEMENT OF SENATOR JOHN HEINZ

Senator HEINZ. We are here today to receive testimony about a critical decision which our allies are about to make, one which could have a profound effect on our European allies' relationship with the Soviet Union and with us. Mr. Chairman, I want to commend you for calling today's hearing on the proposed Yamal Gas Pipeline which will run from the Siberian gasfields to Western Europe and on the role of U.S. export controls in that project.

What particularly concerns me in this matter is how we have come to the point where our closest European allies feel that they are better off depending on the Soviet Union for natural gas imports than on the United States for coal imports.

I know that, at first blush, that question might seem to have a parochial orientation, since my own State of Pennsylvania is such a large coal producer. But there is a much broader question involved. How could our Nation's policymakers, who have such a profound interest in the security and the independence of Western Europe, allow the Europeans to get so far along toward signing a deal on natural gas with the Soviet Union, without having developed an attractive energy alternative to that deal?

I have suggested coal, since the United States is the Saudi Arabia of coal, with fully one-third of the world's proven reserves, a 300-year supply by conservative estimates. But, obviously an energy alternative might consist of a mix of various energy components—coal from the United States, gas from the North Sea, and even an enhanced nuclear capability, for example. Even if such a mix would have slightly higher cost, or take a few years longer to develop, than the Siberian natural gas option, it would seem well worth the cost or the wait, particularly when you consider the choice which the Europeans seem about to make, which will make them as much as 30-percent dependent on the Soviet Union for natural gas supplies.

Our allies look to us for leadership, and I am afraid that we have failed them in this case. That is not necessarily a criticism of the current administration; for this project has been under consideration, or in the planning stage, for years. Obviously, we did not fully appreciate the significance of this project when the first reports came in. The current administration is paying the price in the form of reduced options for the indecisiveness of its predecessor. But still, one has to wonder why this pipeline did not receive a greater degree of attention and priority months instead of weeks, ago.

We know from bitter experience—in the Brazilian nuclear case, for example—that once a major energy decision gets far along and close to a decision, it is difficult, if not impossible, to reverse. That does not mean that the pipeline, in the form which the Soviets have projected for it, is a foregone conclusion. We will be hearing today, particularly from our private witnesses, of possible alternatives and alterations to the Yamal Pipeline.

There is another, quite separate, question about Soviet energy development which I would like to hear our administration witnesses comment upon. For some months now I have been waiting to hear what U.S. policy is going to be with regard to sales of oil and gas equipment to the Soviet Union, whether such equipment is to be placed under foreign policy controls. It is simply not clear that internal energy development for the Soviet Union is in our interest. There are too many unpredictable factors in the equation measuring the behavior of an energy-short Soviet Union. I am sure that is part of the reason why it has taken so long for the administration to formulate a policy position on such exports. I am particularly concerned about whether we can make such controls multilateral, given our experience to date with the Yamal Pipeline, and whether it makes much sense to impose unilateral controls over lower technology items.

As I see it, the European need for diversified energy sources and the Soviet need for enhanced energy recovery present both a challenge and an opportunity for the United States. We must develop a comprehensive energy plan which is attractive to the Europeans and which weans them away from their present willingness to construct an energy dependency relationship with the Soviet Union. Such a plan should be mutually beneficial, and it would serve both our economic and our security interests. Is such a policy really possible?

We must also develop, on a priority basis, a strategy to take advantage of Soviet energy development needs. But first we must decide what that policy should be. That decision is too critical to be indefinitely postponed or allowed to drift.

Those are the questions that I hope this hearing will help answer.

I would make the following observation. We should recognize that the set of decisions by the Europeans that have apparently gotten them to the point where they are willing to proceed with this pipeline have been ongoing for many, many years. They started long before any of the people at the witness table or Ronald Reagan came into office.

Nonetheless, I think we have to ask ourselves the question as a country what it is that exists between our European allies and ourselves that our closest friends in the world—there is just no doubt that the countries such as West Germany, Italy, Austria, and the others have been our closest friends in the world—feel they are better off depending on the Soviet Union for energy supplies than they are on us, or somebody else. And it bothers me deeply that so far I don't think we are able to come up with an answer to that question.

We are sitting here discussing what is really the barn door, and, if you want my opinion, the horse is gone. We are wondering, in

part, what are we going to do about that horse running down the lane, and we are sitting by the barn door wondering whether or not we should slam it. Frankly, that strikes me as an exercise in some frustration, because about the only people we are likely to slam it on are some Americans. The Europeans hope we're going to slam the door, I suspect, on our people, and ironically, although this wasn't this administration's intention, we run the risk, unless we can make CoCom really work—we run the risk of putting American potential suppliers of noncritical, low-technology equipment in exactly the same box that Jimmy Carter, for human rights reasons, put the same kinds of people.

There are going to be some very tough decisions that Larry Brady in particular is going to have to make down here, because, assuming the deal goes through—and I hope it doesn't; I hope we can still attempt some kind of a last-minute rescue operation, or we can run down the path and catch up with the horse, but I am a little pessimistic about that.

The fact is that the decisions that are going to be made are going to have to be made with great sensitivity and promptness, because if this goes ahead you are going to have to decide what can and can't be exported and participated in by American-based companies, and if you take 6 months to make up your mind, or 1, or 2 years—and that's what the State Department, Bob, used to do with human rights violations with Argentina, Chile, and a whole host of other countries. They just never made up their mind, just kind of sat on the sidelines and waited.

The fact is that we will be once again slamming the door on our fingers, or, as Senator Stevenson used to say, shooting ourselves in the foot. I'd like to say I guess I was never surprised that we could shoot ourselves in the foot—but I always was amazed by our capacity to so quickly reload and fire again. [Laughter.]

And that is what I think we have to be extremely cautious about. I must say, as one of several States that mine coal, we don't nearly ship enough coal—Pennsylvania being one of the most important coal-producing States. Senator Garn feels that Utah is one of the most important coal-producing States. It's too bad when you burn it it doesn't give out any heat.

The Chairman. But it's clean. [Laughter.]

Senator HEINZ. There seems to be a deeper problem than just the national security problems that Western Europe becoming dependent on the Soviet Union implies. I would have to believe that the Western Europeans would think that we are a more reliable source of energy than the Soviet Union—and, by the way, if this pipeline goes through, they will be as dependent, almost as dependent, for their natural gas supplies on the Soviet Union as we were on OPEC in 1973 when the embargo took place—I would hope that they would recognize that. Inasmuch as they have decided not to turn to us at this point for energy, there must be other factors involved as to why they would not work even harder than us so that we could help them develop a more diversified set of sources, thinking of coal in particular, for their energy.

I listened very carefully to what Mr. Perle said about Ostpolitik, and certainly that is a factor, and the roots of that, not only in the present German Social Democratic Government, run very deep

among the West Germans. They forever cherish, and I suppose we would, too, the ideal of reunification with East Germany, and that is a factor in their thinking.

But at the same time, I think we should recognize that we are just not being good salesmen of ourselves, and we are going to have to try harder at it. It's not something that essentially—it isn't a problem that the Reagan administration created, but it's one that we have inherited, and you're just going to have to work a good deal harder and a good deal more effectively to do that.

I must say that I commend the President for having gotten a variety of high ranking people together down at the White House to try and get everybody talking with one voice, and I trust that that's going to succeed. But I don't think we have been helped to date in what we're trying to do with the Europeans by the numerous people who have talked about certain kinds of national security issues, and done some of the things that are illustrative of some of the kinds of things that have gotten us into trouble in the past. I hate to see a Republican adminstration take up where the Carter administration left off.

I don't think that the problems that we have had so far quite rival what Mr. Vance and Mr. Brzezinski got into, but it's too close for comfort, to my way of thinking. So I hope that in the future we really will do a good deal better on these issues.

Mr. Chairman, thank you.

The CHAIRMAN. Thank you, Senator Heinz.

Gentlemen, let me follow up first along the line that Senator Heinz is talking about, and my own opening statement. This was an inherited problem, and I am very blunt about the fact that 10 months have gone by and I frankly haven't seen a great deal of change. The President made a good statement at Ottawa—4 months go by—now we get down to 10 days before Brezhnev's going to Bonn, and only a couple of weeks ago we finally have a meeting. I would like some explanations from each of you as to where we are today, where we are going, what you think we can do, in practical terms, to turn this around, and why it has taken so long to get to this position—again, even though it is an inherited problem. Why are we almost to Brezhnev's visit before, apparently, anything forceful has been done to implement the President's statement in Ottawa?

Whoever would like to start, or I will select a volunteer. [Laughter.]

PACKAGE OF ALTERNATIVES

Mr. HORMATS. Let me take a shot at it. I think your point is well taken. What happened after the Ottawa discussions was that, in cooperation with the various agencies here, and the Department of Energy—which played the lead role, since they knew more about the specific elements than perhaps some of us did—we worked to put together a package of alternatives. That took longer than expected—I am not blaming the Department of Energy or any agency, but it just was a longer process than we had originally anticipated. Quite frankly, I think that's the long and short of it. It should have taken less time. I think we all feel that it was slower

than we had anticipated. Finally, as soon as it was put together, the mission was developed to go to the Western Europeans and put the alternative package to them.

Quite frankly, Mr. Chairman, one of the difficulties has been that the pipeline had gone some distance down the road and it was very difficult to come up with what we considered to be a package of alternatives which was immediately, demonstrably going to substitute one-for-one for the Soviet natural gas.

What we think we have succeeded in doing over this period of time was to put together a package which, all taken together, we believe is more attractive economically, and certainly more attractive from a security point of view.

I would like to give you a rundown on the basic elements of that package. First, as I think all of us have indicated, we have stressed the fact that the overall world natural gas market has shifted, and the expectations have shifted even more. As Mr. Perle pointed out, demand, in fact, for natural gas has gone down, and our expectation is that future projections will also be scaled down.

Second, we have indicated that in terms of oil itself the United States is reducing its dependence on imported oil, which frees up more oil for the use of other countries. There won't be the scramble for oil in the next decade that there was in the last decade, so oil supplies are more secure.

Third, we have pointed out the possibility of additional European consumption of Algerian natural gas. This is not an unambiguous benefit. The Europeans are having difficulties now, as you probably know, negotiating with the Algerians on price. Italy and Algeria, and I believe a few other countries, are negotiating on price. The Algerians have taken what we believe, and I understand the Europeans believe, has been an unreasonable position in their price demands.

But nonetheless, Algerian natural gas is a very near proximate alternative, and one that can be expanded over a period of time, particularly inasmuch as we, through what we expect will be deregulation of natural gas over a longer period of time—will be less of a market for Algerian natural gas, freeing up Algerian natural gas for Europe.

Then, as I mentioned in my testimony, Nigerian natural gas is a particularly good alternative. The very large Bonny LNG field is not used at all now. That could provide, in itself, roughly a third of the amount of natural gas which the Europeans are contemplating importing through the Soviet pipeline. There are other alternatives—Cameroon, Trinidad—which have natural gas.

There are also things which can be done internally. Norway, for instance, is a very close, very secure source of natural gas. The Norwegians, largely for their own internal conservation reasons, have not wanted to produce as much natural gas as they perhaps could, but over the longer term, if one relates it to the question of European security and reduced European dependence, there might be a possibility for the Norwegians doing more.

These are some of the major elements that we believe do, taken together, present the possibility of attractive alternatives. It is true, the Europeans have gone a fairly long way down the road and have put together almost all the elements of the pipeline, except

the question of the pricing of the natural gas. But I would submit that while that looks like a small element, it may well be—indeed, it has been over the last couple of months—the major hangup, and we don't know how that's going to come out.

The CHAIRMAN. Is the horse out of the barn? Or is there a possibility for stopping it?

Mr. HORMATS. I would be less than frank with you, Mr. Chairman, if I told you that the thing had not gone very far down the road. It has gone pretty far down the road. It would be hard to project whether the horse is totally out of the barn until we have heard the results of their discussions on the price of natural gas. But I would say if the horse isn't totally out of the barn, nine-tenths of it probably is. [Laughter.]

The CHAIRMAN. Aren't the Europeans really looking at the package you're talking about as a supplement to Yamal rather than a replacement?

Mr. HORMATS. Mr. Brady was on the trip for part of the time, so I should turn to him, but I think that's a fair way of putting it. From most of the reactions we have gotten to this package, it indicates that it is viewed by many of them as a supplement.

CREATE OFFICE OF STRATEGIC TRADE

The CHAIRMAN. Mr. Brady, let me ask you a general question first. As you know, in the last administration I introduced a bill because I was so concerned about high-technology transfers to the Soviet Union and Warsaw Pact nations. And looking at the whole disarray in the Commerce Department, the lack of cooperation between Defense, State, and Commerce in the handling of trade with the Soviet Union. I felt that it was not possible to ever rectify the problems in the current makeup of the department. I therefore suggested that an Office of Strategic Trade be set up in order to avoid the biases of any one of the departments. I did not reintroduce that this year, because of the new administration coming in. We discussed this in hearings as well as privately.

Unfortunately, I have not seen as much action as I had hoped during this year. Are we getting to the point where it is time I reintroduced my bill?

Mr. BRADY. Senator, I will try a way of answering that question perhaps without answering it. Let me deal with the period prior to Ottawa. I think we inherited the issue after we came in in January, got it staffed out, up to the President, through the National Security Council system, and enabled the President to review the implications of the pipeline as well as a couple of other areas dealing with export administration and export control. I think that was done well, and efficiently. Putting together the alternative package, as Bob Hormats has just said, was more difficult. I would not characterize that difficulty as one directly relating to a problem in the Department of Commerce that would have been alleviated by having the Office of Strategic Trade.

I think the fact that I am testifying today specifically not in the usually Commerce mode of a trade promotion agency, but rather from the standpoint of being the line official in charge of the Office of Export Administration, in charge of the program of restricting

exports of technology that would make a significant contribution to the military potential of the adversary, means—as I indicated to you some months ago—that we are able to use trade administration to develop what we perceive to be the best possible policy for the U.S. Government, from the standpoint of restricting that equipment and technology which would be crucial to Soviet military potential. Obviously, we collaborate with State, with Defense, and through the National Security Council. So I think we're still pretty much on course, frankly.

The problem with the pipeline—let me go into a couple of things. I really don't think it's appropriate for me to go into an extensive explanation of the European trip, because I was there for only 3 days, and Mike Rashish had a couple of days ahead of me and spent quite a bit more time there. I was in Paris and in Bonn, and of course Bonn is the most important location from the standpoint of this exercise. But let me just say that the date which I think tells the story about the FRG's attitude on pipeline is April 1980, which apparently political approval was given to the negotiations for this project. It was at the height of the exhortations by the Carter administration to curtail and to restrict, after Afghanistan, and I think it indicates the strong desire to go ahead with the pipeline.

Let me also mention a copy of things by way of commenting on Senator Heinz' observations. Is the horse out of the barn? I'm not sure. That depends entirely on whether we're able to develop the alternative sources, whether they're still feasible or not. And the projections are very, very disturbing in that respect. In other words, we have, as the Congressman mentioned earlier, the head of Mobil Oil Corp. in Germany, who was saying that it will not be economically feasible for him to develop the alternative sources.

Is coal exported from the United States going to be a feasible export? We certainly hope so. As you know, we're working very, very strongly on this in the Department of Commerce. Bill Morris, my colleague, has a task force aimed at increasing coal exports, and I think we're going to be able to do that and do it in a significant fashion. Now, if the deal is signed, we shouldn't walk away from the issue and say we didn't succeed, but rather, we should then attempt to develop the alternative sources as much as we possibly can to as to relieve the effect of the pipeline.

Now why are we in this situation. I'd like, if I may, to just comment in somewhat of a professorial fashion. I think basically the Europeans didn't know whether or not they could count on us. I'm not saying that they told us that. It's a personal opinion of mine. They did not know that we would be a reliable energy supplier. The reason I say that we should continue to keep our feet to the fire in developing the alternatives, is to prove to them that we mean precisely what we say, that we have strategic concerns about this, not only about the energy aspects but about the interdependence that it might bring about, and that we are with them. We need to prove that they can rely on the United States, and that we have recognized finally that we have a world responsibility that we cannot shirk. I think that's part of it. Throughout the 1970's they were not sure that we were willing to assume that role. When we take Watergate, Vietnam, and then ineptness of

some of the elements of the last administration, I think the Europeans were left with a real question mark as to how reliable we were.

The CHAIRMAN. I can understand that, that there could be some concern, but on a relative basis in light of the evidence of Soviet treatment that has been outlined by most of us today, how in the world could they conclude that the Soviets would be more reliable than us, on the basis of hindsight? Have the Europeans lost all their hindsight? Do they have any left at all? Are they totally blind to the Soviet threat? I sometimes wonder. They seem to be so incredibly naive, the more I talk to them. It's not hard for me to see why they've been overrun for centuries. Why they have war after war. They go back through the appeasement cycle over and over again. They don't seem to be able to remember for more than 30 years at a time, and then they wonder why they're in war again. We bailed them out the last couple of times. Is that what we've got to do again because of their stupidity and their naiveness? If that's their kind of conclusion, that because we've got some internal problems in this country, we're less reliable than the Soviet Union, looked at on the basis of the Soviets' performance since the end of World War II—I don't even understand that kind of thinking.

Mr. BRADY. Senator, it's not the United States versus the Soviet Union as far as reliability is concerned, it's really the OPEC countries versus the Soviet Union. Europe wants to decrease their reliance both on oil and the OPEC countries. What we can bring to the picture is primarily coal, and they're very much interested in that.

The CHAIRMAN. We'd like to reduce our own reliance on OPEC too, but I would not suggest we go it with the Soviet Union. I'd just as soon trust OPEC.

Mr. BRADY. Senator, in the final analysis, they do not have the same perception, certainly not the Germans, of the Soviet Union that we do. And that's part of the increasingly disturbing concern that we've got in this country.

The CHAIRMAN. I would suggest the Germans took their blinders off and read a little history, if they don't have the same concerns. Or else they should start teaching Russian in their schools rather than English.

Mr. Perle, just one question. Does the United States have any overall policy with respect to the role we should play in promoting or inhibiting Soviet oil and gas development? I'm speaking in a very general sense now, rather than the specifics of Yamal. Do we have any position on that?

Mr. PERLE. At this moment, Senator Garn, there is with the President a decision memorandum, a draft decision memorandum, that he is considering, that would result in a broad policy on Soviet oil and gas. I'm sorry to say, that decision has not yet been made. It will come as no suporise to you, that there are differing views within the Government as to what decision he ought to make.

INHERITED PROBLEMS

In responding both to this and your earlier question, I can't help but observe that we inherited not only problems from the previous

administration, but we inherited a bureaucracy as well, and it's a bureaucracy with strong institutional momentum. I think we'd be kidding you if we said that because the President at Ottawa expressed his opposition to the pipeline, that we have done all we can do, as a government, to reinforce his view. I'm afraid we haven't. We took too long and we did too little. I hope a clear decision from the President will result in a sense of urgency with respect to this issue, and a sense of urgency sufficient to overcome defeatism and indifference within the bureaucracy. But it is not the case that everyone in this Government shares the views that you've expressed and that have been expressed around this table.

There are departments and individuals who are a good deal less concerned than we are about the exploitation of Soviet oil and gas resources.

The CHAIRMAN. I understand that problem completely. New Presidents come and go, and the bureaucracy stays on, and a new President is only a minor irritation, because they know they'll be there long after he's gone, whoever he is. Maybe that's why we need to get back to more legislative action, and not necessarily my bill. I have no great pride of authorship, but maybe the way to overcome that bureaucracy is to change it and have a new system. So, I'll be patient a little while longer. It's nearly the end of the year. But if we are not able to overcome that bureaucracy and make some changes, maybe the only way to do it is legislatively.

Gentlemen, I have a lot more questions. I apologize for the hearing starting late this morning. We had a leadership meeting at the White House, and that's why the hearing was deferred from 9:30 until 11 and with four additional witnesses continuing to question now, it will be necessary to move on. I will have many additional questions for each of you that I would appreciate you responding to in writing for the benefit of the committee.

[The following information was received for the record:]

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

INTERNATIONAL
SECURITY POLICY

16 DEC 1981

In Reply Refer to:
I-15962/81

Mr. Edward Dicks
Committee Editor
Committee on Banking, Housing,
and Urban Affairs
5300 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Mr. Dicks:

Assistant Secretary Perle has asked me to respond to you on his behalf regarding the questions forwarded to him by Senator Garn after the November 12 hearing on the West Siberian pipeline project.

Question: To what degree is the issue being dealt with by high level Administration people, from the perspective of its consequences for NATO? Who is dealing with it?

Answer: The West Siberian natural gas pipeline project has been the subject of consideration at the very highest levels of the United States government. In these discussions all aspects of the project have been thoroughly examined, including the long term political and military consequences for the North Atlantic Treaty Organization. The Secretary of Defense has expressed his concerns on more than one occasion to the President, the Secretary of State, as well as other senior officials responsible for defense and foreign affairs. There is a consensus among these officials that the project is inimical to the interests of the United States.

Question: At what level is the issue being dealt with within the NATO structure?

Answer: The NATO organization has dealt with this issue on more than one occasion. For example, the Economic Committee has debated the issue at special reinforced meetings and has convened an experts meeting to examine the ramifications of Soviet energy development. Our mission at NATO has worked hard to present our concerns in an Alliance context.

Question: In written testimony submitted for the hearing, Anthony Cordesman, a Fellow at the Woodrow Wilson Center, states, "We should not accept a European definition of 'detente' that weakens Europe economically and militarily, while it leaves the U.S. tied to Europe through our forces in NATO and the 'umbrella' of our strategic forces." Volumes are said there. I agree with that statement. One of my concerns with this pipeline project is that we may be acquiescing in Western European participation in the pipeline without our looking for any quid pro quo. I am concerned with Western Europe becoming weakened by the pipeline, but we are weakened too by the pipeline. I think that we are fully justified to require a quid pro quo for that, such as increased support for TNF. Has any kind of linkage of that sort been brought up with the Europeans? Has that option been considered by the Administration?

Answer: We have avoided linking our support for the pipeline with a quid pro quo from our Allies. We feel that the ultimate responsibility for the pipeline project rests with the participants. After all, it is they that will have to live with the economic, energy, political and strategic consequences of the project for a generation to come. We are opposed to the West Siberian project on its merits, or lack thereof. It is a bad deal for the Western participants in both financial and energy security terms. It would not be in either our interest or those of our Allies to acquiesce to the pipeline in order to gain support for other measures enhancing our mutual security in other areas.

Question: Mr. Brady mentioned in his testimony a very serious test to COCOM, the case concerning French computerized flow control equipment. There are some reports that the French may deny the sale. What effect would that denial have on the pipeline project? Would other states, members of COCOM or not, perhaps supply the equipment? What might be done to encourage the French to deny the sale and discourage other supplies from stepping into the breach?

Question: We understand that the French questioned the sale of certain electronic equipment on the grounds of preserving the security of strategically sensitive technology. We applaud that stance. COCOM members, such as France, have an obligation to the fellow members of that organization to maintain the embargo against the Soviet Union of militarily relevant

technology and equipment. We have every expectation that France and the other members will continue to do so. Indeed, at Ottawa last July, the President urged high level review of COCOM technology restrictions and procedures, which the other members have agreed to hold early next year. Not all advanced industrial states are members of COCOM. We are continually seeking ways to deny commercial advantage to those states that choose to remain outside the COCOM framework.

Question: A report in the Financial Times of London suggests that nearly all of the equipment involved in the pipeline "rests on the technology of three U.S. companies -- G. E., Dresser and Cooper". What kind of options does that give the U.S.? Is there any opportunity for leverage involved there? What is the policy of the Administration with regard to the participation of U.S. industry in the project?

Answer: The U.S. has not approved licenses for any equipment for the West Siberian pipeline project to date. Unfortunately much equipment produced by foreign manufacturers of U.S. design or origin is not captured by existing validated licensing requirements. We are reviewing the adequacy of regulations governing the exports of such equipment at this time.

Question: The Administration is trying to come to a decision on policy concerning U.S. assistance in Soviet energy development. Time is growing short. When will we have such a policy? What are we doing in the interim? How much of the delay in reacting to the pipeline issue is attributable to the lack of specific policy?

Answer: The present Administration has consistently opposed the West Siberian pipeline project and continues to doubt its wisdom. This Administration does have a policy of great caution toward assisting Soviet energy development. Many of the specific guidelines on the exports of equipment and technology have been carried over from the previous Administration. We have been reviewing these and hope to have a more effective set of regulations that will be clearer and thus more fair to U.S. business in the near future.

Question: A front page article in the Economist "Foreign Report" indicates that the Soviets plan to use large numbers of Vietnamese "guest workers" in the development of the new oil and gas fields in western Siberia. Several hundred thousand Vietnamese may be involved, who would reportedly receive their wages in 40% local currency, with 60% of their wages going to offset Vietnam's trading debt (largely for the purchase of Soviet arms) to the Soviet Union. They will "live in segragated communities with little contact with local population." What kind of a picture would it paint for the West to be involved in working side-by-side with such Soviet slave-labor arrangements?

Answer: It is an appalling prospect.

Sincerely,

STEPHEN D. BRYEN
Deputy Assistant Secretary
International Economics, Trade
and Security Policy

ANSWERS TO QUESTIONS SUBMITTED TO COMMERCE DEPARTMENT

Garn Questions:

1. QUESTION: You mentioned in your testimony a very serious test to COCOM, the case concerning French computerized flow control equipment. There are some reports that the French may deny the sale. What effect would that denial have on the pipeline project? Would other states, members of COCOM or not, perhaps supply the equipment? What might be done to encourage the French to deny the sale and discourage other supplies from stepping into the breach.?

   ANSWER: The French Government last month gave its approval to the French firm Thompson-CSF to export computers to the USSR for computerized gas measuring and communications control for the West Siberian pipeline. The computers are the Mitra 225 and 525. The French reportedly concluded that COCOM approval for these sales was not necessary. The French apparently have not responded positively to a Soviet request for a larger and more sophisticated computer which would control gas flow for the entire pipeline as well as provide the capacity for completely automated gas grid integration of all gas pipelines throughout the USSR.

2. QUESTION: A report in the Financial Times of London suggests that nearly all of the equipment involved in the pipeline "rests on the technology of three U.S. companies -- G.E., Dresser and Cooper". What kind of options does that give the U.S.? Is there any opportunity for leverage involved there? What is the policy of the Administration with regard to the participation of U.S. industry in the project?

   ANSWER: Technology for certain critical equipment items -- namely compressor stations -- rests largely with the U.S. firms of G.E., Dresser and Cooper. Compressors and turbine engines are vital pieces of equipment for the pipeline and may account for a significant portion of total equipment costs. Much of the potential U.S. leverage for deterring or delaying pipeline construction is in this critical equipment area. The Administration has not licensed any oil and gas equipment for the pipeline and has repeatedly advised our European Allies of the disadvantages of this project, including possible vulnerabilities from growing West European dependence on Soviet energy.

President Reagan's announcement of economic sanctions against the Soviet Union on December 29, 1981, for its heavy and direct responsibility for the repression in Poland widened export controls on oil and gas equipment. The issuance of export licenses on such equipment was suspended. Industrial gas turbine engines and compressors were specifically added to the Commodity Control List as a result of the December 29 Presidential action.

3. QUESTION: The Administration is trying to come to a decision on policy concerning U.S. assistance in Soviet energy development. Time is growing short. When will we have such a policy? What are we doing in the interim? How much of the delay in reacting to the pipeline issue is attributable to the lack of specific policy?

   ANSWER: The Polish crisis erupted at a time the Administration was considering its export licensing policy on oil and gas equipment. The policy review was near completion and high-level consultations with our European allies over our concerns relating to the pipeline had been held. As already mentioned the President's economic sanctions announced December 29, extended export controls to an expanded list of oil and gas equipment needed for the pipeline.

4. QUESTION: How much U.S. oil and gas equipment has been licensed to the USSR since this Administration has come into office? In the absence of an overall policy concerning the advantages and disadvantages for America's national interests in promoting Soviet energy development, on what criteria are we making these decisions?

   ANSWER: The Administration has licensed 64 cases for oil and gas equipment and 9 for oil and gas technology to the USSR. The total value of licenses issued is approximately $140 million; $135 million equipment; and $5 million technical data. The approved cases were evaluated on the basis of the following criteria:

   - Efficiency of technology transfer;
   - Significance of the equipment to Soviet oil and gas exploration and production efforts;
   - Potential of diversion to other than the stated uses; and
   - Foreign availability of essentially comparable equipment.

No licenses for technology or equipment have been approved for the Siberia to Western European gas pipeline. The largest approved case was $40 million for 100 pipelayers for other (e.g. internal domestic lines) pipelines. Other large value licenses were: $35 million for a workover rig; $15 million for a jacking system; and $12 million for blow out preventors and parts.

5. QUESTION: A front page article in the Economist "Foreign Report" indicates that the Soviets plan to use large numbers of Vietnamese "guest workers" in the development of the new oil and gas fields in western Siberia. Several hundred thousand Vietnamese may be involved, who would reportedly receive their wages in 40 percent local currency, with 60 percent of their wages going to offset Vietnam's trading debt (largely for the purchase of Soviet arms) to the Soviet Union. They will "live in segregated communities with little contact with local population." What kind of a picture would it paint for the West to be involved in working side-by-side with such Soviet slave-labor arrangements?

   ANSWER: If reports are true, not a good one.

Heinz Questions:

1. QUESTION: Has the Administration developed a policy on the sale of oil and gas technology and equipment to the Soviet Union?

   ANSWER: President Reagan announced an expanded list of oil and gas equipment controls on December 29, 1981, in response to Soviet actions in Poland. Export licensing controls which formerly applied to oil and gas equipment for use in exploration and production were extended to cover the areas of refinement and transmission. No licenses are now being issued.

2. QUESTION: If not, when can we expect such a policy to be formulated? Has the Administration decided whether the use of "foreign policy" criteria will be similar or different from the Carter Administration?

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ANSWER: Secretary Baldrige notified the Congress on December 31, 1981, that "foreign policy" controls would be temporarily extended to February 28, 1982. This short extension of such controls will allow the Administration time to complete its policy review and determine its own criteria for applying foreign policy controls. The Administration intends that export controls form a coherent element of an integrated overall U.S. foreign policy. There is also, I believe, a disposition on the part of this Administration to reduce and simplify such controls whenever possible.

3. QUESTION: What about other lower technology items, if we were to cut off pipelayers or machine tools, not on the COCOM restricted list, how much cooperation could we expect from our allies not to supply such items?

ANSWER: That remains an open question. Nevertheless there have been some indications recently that there may be rising concern in Europe, especially in France and Italy, over the increased level of dependence on Soviet natural gas once the pipeline is built. Although the Europeans have taken some recent steps, which we welcome, discussions are continuing with a view to reaching agreement on a broad range of effective sanctions toward the USSR. Further, we are encouraged by the recent NATO Foreign Ministers' Declaration indicating the allies recognize the importance of economic measures in dealing with the Soviet sponsored repression in Poland. We are also encouraged by the allies resolve not to undermine the effect of each other's measures.

4. QUESTION: How unique is our technology in the oil and gas equipment field? Is foreign availability comparable, or of a lower quality and, therefore, of less use to the Soviets?

ANSWER: United States oil and gas equipment is superior operating in Arctic and cold weather environments. Substantial experience was gained in designing and adapting oil and gas equipment for such environments with the construction of the 800 mile trans-Alaskan oil pipeline. The challenge is probably greater with a 3,000 mile natural gas line. The United States has the lead in some important areas, notably gas turbine engines and the compressors needed for moving the gas through the pipeline.

Clearly, with the challenges the Soviets face in construction of such a pipeline of unprecedented proportions, they seek the very best equipment available. The United States has unique "hands-on" expertise in Arctic construction techniques. Much of our equipment (such as off-road trucks, pipelayers and testing devices) are more rugged and better suited to operate reliably in those conditions. U.S. industry also has a special ability to

supply the key components in quantity for the gas turbine engines used in the compressor stations. The USSR is today unable to supply from domestic sources the large gas turbine units in the quantities needed to increase their natural gas pipeline capacity. There could be significant delays and cost overruns if U.S. origin equipment, whether manufactured here or in Europe is not available. In short, there is strong evidence the project may not be able to proceed satisfactorily without U.S.-origin equipment and technology.

5. QUESTION: Do the credit terms offered to the Soviets violate the OECD's "Arrangement on Officially-Supported Export Credits"?

ANSWER:

At this time, it is unclear whether credit terms being discussed for the proposed Soviet gas pipeline would violate the official credits arrangement. It is still too early to provide a final answer because the outlines of the financial package are still evolving.

Even if final credit arrangements for the pipeline remain technically within the official credit guidelines, it should be noted that any loan guarantees extended by Western governments to support the Soviet pipeline will likely result in significantly lower interest rates for the USSR than would otherwise be the case. This is because Western government guarantees of commercial bank loans will reassure Western bankers as to the economic and political feasibility of the pipeline project. For the contracts signed to date, the Soviets have secured very favorable rates, considering the relative tight money policies of most Western governments and the Soviet and East block debt overhanging the market. Consequently, it is possible that even if the final credit terms offered by the various Western governments do not involve substantial direct subsidies, the very act of issuing guarantees will improve Soviet creditworthiness and will, therefore, have essentially the same economic effect as a subsidy.

DEPARTMENT OF STATE

Washington, D.C. 20520

GARN QUESTIONS

Q1: To what degree is the issue being dealt with by high level Administration people, from the perspective of its consequences on NATO? Who is dealing with it?

A: The Administration has consistently devoted high level attention to the West Siberian-West European pipeline and the broad Western security issues it raises.

The issue has been discussed at the NSC with the President in attendance. At the Sub-Cabinet level, senior interagency groups have been monitoring pipeline developments and formulating the U.S. response. The Departments of State, Defense, Commerce, Energy, Treasury, the USTR, CIA, and the NSC staff have all been centrally involved in the policy discussion.

Q2: At what level is the issue being dealt with within the NATO structure?

A: The North Atlantic Council, the Economic Committee, NATO Ambassadors and experts from NATO capitals have all considered pipeline-related, energy trade issues.

Q3: What do you think could be done within the NATO context to insure that projects of this sort -- with significant impact on Alliance relationships -- receive the attention that they deserve? In other words, how can we better coordinate NATO's efforts to counter Soviet economic warfare? What role could be played by NATO's Economic Secretariat?

A: The U.S. successfully has urged the NATO Economic Secretariat to give greater attention to policy concerns related to East/West trade transactions, including those in the energy field. Representatives of State and other Departments have taken the opportunity this year to discuss the Economic Secretariat's work programs, and found the Secretariat staff very receptive to U.S. views that the Economic Committee can play an even larger role. At a meeting of the NATO Econads in late February 1982, we discussed the impact of Soviet energy exports on Western security.

Q4: In written testimony submitted for the hearing, Anthony Cordesman, a Fellow at the Woodrow Wilson Center, states, "We should not accept a European definition of 'detente' that weakens Europe economically and militarily, while it leaves the U.S. tied to Europe through our forces in NATO and the 'umbrella' of our strategic forces." Volumes are said there. I agree with that statement. One of my concerns with this pipeline project is that we may be acquiescing in Western European participation in the pipeline without our looking for any quid pro quo. I am concerned with Western Europe becoming weakened by the pipeline, but we are weakened too by the pipeline. I think that we are fully justified to require a quid pro quo for that, such as increased support for TNF. Has any kind of linkage of that sort been brought up with the Europeans? Has that option been considered by the Administration?

A. The Europeans consider the pipeline to be a project that they have carefully considered and to which they are committed. We have therefore sought to express strong concern about the pipeline in a way that would strengthen rather than weaken the Alliance. This is particularly important at a time when Western unity is needed on Poland.

It would be counter-productive to press for a wholly unrelated quid pro quo now. In particular, TNF is not a useful area in which to try to extract concessions. Our approach to both tracks of NATO's December 1979 TNF decision, deployment and arms control, have full Allied support. The FRG has been quite active in carrying out both tracks; Chancellor Schmidt has in a real sense staked his political future on the success of TNF.

Q5: In written testimony submitted to this Committee, Mr. Anthony Cordesman addressed the implications of Soviet intervention in Poland for the pipeline. Mr. Cordesman stated that, "we have every right to expect them (our Western European Allies) to halt their support of the project the moment the Soviet Union intervenes in Poland. The alternative would be the most shameful single act by the Western democracies since Munich. It would not even have the intellectual dignity of appeasement since it would be moral cowardice without even the rationale of an urgent threat." Have we discussed the prospect of political developments in Poland with our allies, particularly their potential impact on the construction and financing of the pipeline? What would be their response with regard to the project in the event of Soviet intervention in Poland?

A. We have discussed thoroughly with our NATO Allies the sanctions we have put in place in response to the Soviet Union's role in the imposition of martial law in Poland. Our measures will influence East/West trade, particularly in the energy sector. Our Allies are resolved not to undermine the effectiveness of our measures and have taken specific measures on their own.

Q6: Mr. Brady mentioned in his testimony a very serious test to COCOM, the case concerning French computerized flow control equipment. There are some reports that the French may deny the sale. What effect would that denial have on the pipeline project? Would other states, members of COCOM or not, perhaps supply the equipment? What might be done to encourage the French to deny the sale and discourage other supplies from stepping into the breach?

A. A French denial of computerized flow control equipment for the Siberian gas pipeline would have little effect unless other potential suppliers (e.g. Japan, Germany, and the United Kingdom) also denied comparable equipment. All these countries control sales of computers to the USSR pursuant to agreement reached in COCOM. Since the Soviet invasion of Afghanistan, the United States has sought to bar exports to the USSR of any computers requiring COCOM review--a policy of "no exceptions". The computers used to control the flow of gas in a pipeline are not high performance machines and thus, as in this case, may not exceed the technical threshold for COCOM review.

We understand that the French did not approve the sale of the complete computer system that the Soviets originally requested, in part due to the COCOM standards.

Q7: The Administration is trying to come to a decision on policy concerning U.S. assistance in Soviet energy development. Time is growing short. When will we have such a policy? What are we doing in the interim? How much of the delay in reacting to the pipeline issue is attributable to the lack of specific policy?

A. On December 29, in response to the Soviet role in Poland, President Reagan announced that the list of oil and gas equipment and technology requiring a license for export to the Soviet Union would be expanded, and that issuance of such licenses would be suspended. As a result, we have blocked the export of U.S. components that were to be used in the pipeline.

Q8: Reportedly, the Western Europeans do not currently consider U.S. coal to be an acceptable alternative to Soivet gas. Why not? What elements would be needed in order for U.S. coal to be an acceptable energy alternative?

A: The Europeans have told us that they view U.S.coal -- along with other alternatives which we presented to them -- as valuable complements to, but not substitutes for, the Soviet gas that they are contracting to buy. The principal reason they give for this view is that coal and gas have very different characteristics, and will be used to fill needs that are quite different. Gas is a fuel which is clean, easily handled (especially if large distribution infrastructures are already in place, as is the case in Western Europe), and has a high heat value. This makes it particularly valuable for use as a chemical feedstock, in certain specialized industrial uses (such as the metallurgical, glass and ceramic industries) where purity is a significant concern, and for home heating use. Coal is most suitable for burning in large boilers to produce industrial heat or to turn electric generators. It is less suitable than gas as a home heating fuel in Europe for the same reasons it is not widely used for that purpose in the United States -- its use in small applications requires extensive infrastructure modifications and carries with it environmental hazards.

Use of gas as an industrial fuel in Europe grew rapidly along with household use in the 1970s, when oil

prices were rising rapidly and gas prices were relatively stable. Now that the price of gas in Europe is rising rapidly, however, government policy there aims at reinforcing market forces which tend to move gas increasingly into residential and specialty markets, in which consumers are willing to pay more for gas's special qualities, and out of the industrial and electric generation markets. Projected growth in European gas consumption is expected to come for the most part in the residential market. In industrial uses, European governments recognize that coal is the more appropriate and economical fuel, and all major European energy-consuming countries are projecting substantial increases in the use of coal and their imports of U.S. coal.

The Administration places primary reliance on private markets to indicate the quantity and direction of U.S. coal exports. The Federal government's role is to facilitate, but not subsidize, coal exports. Private markets have shown themselves to be able to handle rapid changes in conditions, and are now gearing up for greatly increased exports of coal. Given the substantial private investment now under way in coal port loading facilities, we do not believe the capacity of U.S. port facilities will constrain exports. With regard to the deepening of coal ports, the Administration has proposed legislation to speed up port dredging by removing it from the Congressional appropriations process, and to make it respond to market forces through application of user fees. A number of U.S. ports are preparing to proceed with dredging operations, and we believe that work will begin shortly after Congress enacts a clear national policy in this area.

Q9: Commerzbank announced a few weeks ago that for the second consecutive year it will not be offering a dividend. This is symptomatic of overall banking conditions in the FRG. What will be the economic impact for Germany if nearly all its largest banks have major loans tied up in this pipeline?

A: The experience of Commerzbank is indicative of the overall state of the German banking sector. German banks, like their counterparts in the U.S., have been suffering from the effects of high and fluctuating interest rates. The problem in Germany has been exacerbated by the fact that German bankers tend to hold a relatively large share of their assets in the form of long-term government bonds, while their liabilities are largely short-term. When short-term interest rates exceed long-term rates, as has been the case recently, a profit squeeze on banks ensues. German law, which was strengthened substantially in the wake of the Herstatt bank failure, requires that banks not have more than 10 percent of their total exposure with any one entity. Germany's expected share of the $12 billion Siberian project is $3 billion. Even if it were double that amount, it would represent a relatively small part of their foreign lending. Loans advanced to help finance the pipeline will be guaranteed by the German Federal Government.

Q10. Afghanistan is currently delivering all of its natural gas supplies to Asian portions of the USSR., allowing the Soviets to divert large amounts of their own natural gas into exports. To what extent then would the NATO countries be financing the Soviet invasion of Afghanistan by purchasing these diverted supplies?

A. The decision of the USSR to export natural gas to Europe was not influenced significantly by their access to Afghan natural gas. In 1980, Soviet gas imports from Afghanistan (.2 bcf/d) were the equivalent of about 9 percent of Soviet gas exports to Western Europe (2.2 bcf/d). Western countries would by no means be purchasing Afghan gas.

Conversely the pipeline from Siberia to Europe, which will not go into operation until 1984/85 at the earliest, has no direct effect on the past or present Soviet-Afghan natural gas relationship, which is marginal though not totally insignificant to the USSR. Without much domestic demand, Afghanistan has been exporting nearly all of its gas production--which was developed with Soviet aid--to the USSR since 1967. Natural gas is Afghanistan's major export to the USSR.

Q11. A front page article in the Economist "Foreign Report" indicates that the Soviets plan to use large numbers of Vietnamese "guest workers" in the development of the new oil and gas fields in Western Siberia. Several hundred thousand Vietnamese may be involved, who would reportedly receive their wages in 40 percent local currency, with 60 percent of their wages going to offset Vietnam's trading debt (largely for the purchase of Soviet arms) to the Soviet Union. They will "live in segregated communities with little contact with local population." What kind of a picture would it paint for the West to be involved in working side-by-side with such Soviet slave-labor arrangements?

A. The Economist article provided a very interesting report on one aspect of the Soviet-Vietnamese economic relationship. We have no other reports corroborating this information.

Assuming that there will be Vietnamese labor on the pipeline, we lack details on the wages, access to consumer goods and services, and housing, how this compares with their situation in Vietnam, and whether or not such service is voluntary. Without such details, it would be premature to label these workers "indentured labour" as the Economist did.

HEINZ QUESTIONS

Q1: What, if anv, are the problems with offering U.S. coal as an energy alternative to the Western Europeans? U.S. port facilities? What has been done to develop the coal option? Has the Administration even drawn up a program for the supply of U.S. coal and dealing with any associated problems?

A: The Europeans have told us that they view U.S.coal -- along with other alternatives which we presented to them -- as valuable complements to, but not substitutes for, the Soviet gas that they are contracting to buy. The principal reason they give for this view is that coal and gas have very different characteristics, and will be used to fill needs that are quite different. Gas is a fuel which is clean, easily handled (especially if large distribution infrastructures are already in place, as is the case in Western Europe), and has a high heat value. This makes it particularly valuable for use as a chemical feedstock, in certain specialized industrial uses (such as the metallurgical, glass and ceramic industries) where purity is a significant concern, and for home heating use. Coal is most suitable for burning in large boilers to produce industrial heat or to turn electric generators. It is less suitable than gas as a home heating fuel in Europe for the same reasons it is not widely used for that purpose in the United States -- its use in small applications requires extensive infrastructure modifications and carries with it environmental hazards.

Use of gas as an industrial fuel in Europen grew rapidly along with household use in the 1970s, when oil prices were rising rapidly and gas prices were relatively stable. Now that the price of gas in Europe is rising rapidly, however, government policy there aims at reinforcing market forces which tend to move gas increasingly into residential and specialty markets, in which consumers are willing to pay more for gas's special qualities, and out of the industrial and electric generation markets. Projected growth in European gas consumption is expected to come for the most part in the residential market. In industrial uses, European governments recognize that coal is

the more appropriate and economical fuel, and all major European energy-consuming countries are projecting substantial increases in the use of coal and their imports of U.S. coal.

The Administration places primary reliance on private markets to indicate the quantity and direction of U.S. coal exports. The Federal government's role is to facilitate, but not subsidize, coal exports. Private markets have shown themselves to be able to handle rapid changes in conditions, and are now gearing up for greatly increased exports of coal. Given the substantial private investment now under way in coal port loading facilities, we do not believe the capacity of U.S. port facilities will constrain exports. With regard to the deepening of coal ports, the Administration has proposed legislation to speed up port dredging by removing it from the Congressional appropriations process, and to make it respond to market forces through application of user fees. A number of U.S. ports are preparing to proceed with dredging operations, and we believe that work will begin shortly after Congress enacts a clear national policy in this area.

The Administration is also working to increase the availability of Federal lands for mineral leasing and to eliminate regulatory barriers to completion of port projects.

Good progress has already been made in some of these areas, and we expect additional favorable develoments in the coming months.

Q2: What is the current state of the U.S. energy alternative proposal package for the Western Europeans? When was the package finally put together? Why did it take so long, given the President made it a matter of priority after the Ottawa Conference?

A: When President Reagan raised concerns about the pipeline at the Ottawa Summit, he agreed that the U.S. should discuss energy alternatives to the pipeline with European participants. We knew that the Europeans themselves did not believe there were alternatives that would be more economical and more secure than the pipeline. To be credible, we had to develop a very sound and well researched approach. With leadership from the Department of Energy, we undertook detailed analyses of some alternatives, but this proved to be a complicated and time-consuming process. Interagency deliberations on the package concluded only during the last week in October.

During the first weeks in November, an interagency team visited Europe to discuss the alternatives with our allies. European leaders expressed interest in some of the alternatives that we raised and indicated that they would like to continue a dialogue on means to expedite development of these energy sources. They noted, however, that they would view additional energy as a supplement to, rather than a replacement for, the Soviet gas expected to flow through the pipeline.

Q3: Does the Administration view coal exports within the strategic context of relieving allied dependency on the Soviet Union, or are coal export possibilities, and port facilities for those exports, viewed solely as commercial or private sector problems?

A: The Administration believes that coal exports have a significant strategic importance. We have encouraged, and will continue to encourage, our allies to turn to U.S. coal as an alternative to unstable energy supplies from the Soviet Union or the Middle East. The economic basis for substantially increased use of coal is already present. We have also made it clear that the U.S. will remain a reliable supplier of coal, and that coal exports under contractual commitments will not be halted except in case of a severe national emergency. We do not believe it is necessary or advisable for the Federal Government to subsidize coal exports, or to involve itself in market determinations of how much export capacity needs be built.

Nonetheless, the Administration's belief that coal exports can serve an important strategic function played a part in the President's decision to fund, in cooperation with the State of Maryland, a start-up of work on the project to dredge Baltimore harbor. Completion of that project (and other market-determined export capacity expansions) will make U.S. coal an even more economical alternative for our European allies, and will facilitate increased coal exports. The State of Maryland's agreement in principle to repay the federal monies spent on the project in accordance with the proposed user fee legislation has made it possible for an early start to be made on this project.

Q4: How did the U.S. proposal of alternative nuclear and coal developments fit into our discussions with the Europeans?

A: We indicated our view that the prospects for continued nuclear development and expanded use of coal are improved. The Administration has adopted clear policies to remove impediments to American industries playing key and reliable roles in these world markets. Coal and nuclear development not only offer new alternatives to imports of Soviet gas, but should create new downward pressure on the international cost of energy. We suggested, therefore, that the Europeans delay any agreement to purchase Soviet gas, pending a review of the prospects for coal and nuclear power, among other alternatives.

Q5: What are the time dimensions and realism of the alternative source proposals presented to the Europeans?

A: The U.S. has sought to convince the Europeans that, with a strong commitment, numerous energy alternatives could be developed. We pointed out that, over the medium term, the international energy markets are likely to continue to be soft. Thus, in our view, the Europeans have time to assess alternative options.

We have urged the Europeans to consider devoting the financial resources pledged to the Soviet deal to develop resources in Africa, the Middle East and the North Sea. We have also noted that the international coal market is expanding, and all indications suggest that supply potential in the West is more than adequate to meet European coal demand, and that coal can substitute for gas in some uses. The Europeans are keenly interested in developing these and other alternatives but believe these alternatives cannot be expected to come on stream as quickly as the Soviet pipeline.

Q6: When could U.S. coal be available in volume to the Germans for alternative use?

A: U.S. coal is available in volume now. Shipments of coal to the Federal Republic of Germany have increased more than 95 percent during the first 8 months of this year over the same period last year, to over 2.5 million tons. There is no shortage of U.S. mining capacity. The National Coal Association estimates that approximately 100 million tons of excess annual coal mining capacity is available now. The bottleneck in coal port loading facilities which constrained U.S. exports in the past two years is fast disappearing as new facilities are built. By 1983 there should no longer be waiting lines for coal ships at U.S. ports.

Q7 Is a nuclear electric program in the FRG politically feasible? Are the problems political, environmental, or economic? Or all three?

A. Political and environmental factors currently limit construction of additional nuclear facilities in the FRG. Last year, the amount of electricity generated by existing nuclear facilities increased, thereby backing out some natural gas from use in the power generation industry. But a new nuclear electric program will require the construction and operation of additional nuclear facilities. Additional construction and operation is currently barred by court imposed requirements that the West German nuclear industry develop firm waste disposal plans before commissioning additional facilities. To date the nuclear industry and its West German Government supporters have not been able to develop a politically viable disposal plan that would comply with that requirement.

Q8: How does gas pricing tie into Algerian gas and OPEC oil pricing?

A: Since Assistant Secretary Hormats' testimony on November 14, the Soviets have reached gas price agreements with gas importing companies in the FRG, France, and Italy. While the full details of these contracts have not been made public, it appears that the Soviets have sought to price their gas competitively with Algerian gas and OPEC oil. The West German-Soviet contract is reported to compare favorably with the Belgian-Algerian gas price agreement, which now has a base price of approximately $5.50.

The Soviets' ability to compete effectively with Algerian gas prices reflects in large part high Algerian demands. The Soviet price may also reflect the strong Soviet desire to gain a foothold in the European market and to put together a big deal that will help them to further develop their internal gas infrastructure.

But, while the reported Soviet gas price is lower than Algeria's, it is not clear that even the price established in the Soviet contract with Ruhrgas reflects the realities of the European market as a whole. Over the longer term, natural gas will have to compete with alternative fuels that may be more economically priced.

Q9 If prices go up for OPEC oil or gas, might not that price increase make coal from America more attractive?

A: Yes.

Q10: What precautions can the U.S. realistically press the Europeans to make in case of a Soviet cutoff of gas?

A: In the final evaluation, the Europeans must live with the consequences of their decision on this pipeline and decide what precautions to take to alleviate the dangers of a prospective Soviet gas cut-off.

But we are Europe's friend and ally; Europe's energy security is fundamentally linked to our own. During recent consultations, West European leaders noted that they have considered the security implications of the project and that they have determined what safety measures are needed. The West Germans seemed particularly advanced in their planning on this subject and expect to depend largely on indigenous West European surge capacity to offset the dangers of a Soviet supply interruption. Other aspects of the safety net include dual fire capability, demand restraint, and stored gas reserves. In addition, the EC Commission is studying the importance of coordinating individual gas contingency plans and hopes to prompt cooperation among the parties to the pipeline deal.

Q11: What specific safeguards have West Europeans built into the system?

A: Most West European pipeline participants will depend heavily on the flexibility of Dutch gas supply contracts to back stop the Soviet deal. Under the terms of current contracts, West Europeans could increase their consumption of Dutch gas at short notice. This contracted surge capacity could be as much as 40 percent of expected total Soviet supplies in 1990.

In addition to the Dutch resources, the West Europeans expect to depend on stored reserves and demand restraint in the event of a shortfall of Soviet supplies. The West Europeans noted that they will sell a significant percentage of the Soviet gas on an interruptible basis. Some gas consumers, e.g. electrical power utilities and large industries, would be required to turn to alternate fuels, particularly oil or coal, if there were a Soviet supply interruption.

Q12: Despite the options for a "safety net," including coal, nuclear, liquified and natural gas, has the Reagan Administration taken a position in opposition to the pipeline agreement or one of conditional approval if the Europeans build in sufficient safeguards to avoid undue vulnerability to Soviet use of the "gas lever"?

A: The Administration has expressed strong concern about the pipeline because, in our view, it crosses a prudent threshold of West European dependence on Soviet energy resources, and could render our allies vulnerable to Soviet energy leverage. And the Soviet financial benefits from this project -- through hard currency earnings -- are of considerable importance in Soviet economic planning.

Although we have heard in general terms the European proposal for constructing a gas safety net that will limit their vulnerability to Soviet energy leverage, we have not yet received sufficient detail to assess its effectiveness. Even with a safety net, however, the Soviets would gain the economic and political benefits of increased gas sales.

Q13: What is the current state of commitment on financing, equipment supply, and gas-supply contracts?

A: Soviet-West European negotiations on the pipeline have proceeded on separate tracks regarding gas supply, financing and equipment contracts. The state of play of these negotiations with suppliers, financiers and gas purchasers is complex.

In our unclassified briefing, it seems appropriate to limit ourselves to several general observations. The negotiations are at a very advanced stage and only the fine details remain to be settled. The Soviets have already contracted for all the equipment required for pipeline construction. Lines of credit are open and available to the Soviets, covering adequate dollar value amounts to meet all hard currency costs. The Soviets have reached technical price/supply agreements with the FRG, France, and Italy. The FRG alone has officially approved the terms. Most industry officials believe that contracts with other gas consumers, based on the West German terms, will follow shortly.

Q14: If we over-play our hand and seem to be putting on too much pressure, could this issue spill over into other alliance issues, causing the Europeans to balk at greater arms budgets, for example?

A: Yes, it would be possible to over-play our hand. The Europeans are very strongly committed to this project, which is already underway. In the final analysis, it is the West Europeans who must weigh the merits of the project, and it is they who will garner most of the benefits and bear the risks this project will pose.

Q15: If the Soviet Union invades Poland, what do you think would happen to the pipeline deal?

A: The U.S. and our NATO allies have had thorough discussions on a range of measures to be taken in the East/West trade area, in the event of a Soviet invasion of Poland. Decision on actual measures would be made at that time.

Q16: Has the Administration developed a policy on the sale of oil and gas technology and equipment to the Soviet Union?

A: Yes. On December 29, President Reagan expanded the list of oil and gas equipment and technology requiring an export license, and suspended issuance of the licenses.

Q17: If not, when can we expect such a policy to be formulated? Has the Administration decided whether the use of "foreign policy" criteria will be similar or different from the Carter Administration?

A. Not applicable.

Q18: What about other lower technology items, if we were to cut off pipelayers or machine tools, not on the COCOM restricted list, how much cooperation could we expect from our allies not to supply such items?

A: It would be difficult to gain Allied cooperation in restricting the export of pipelayers or other lower technology items for which no military concern unrelated to the pipeline has been demonstrated. Yet we have suspended export of key pipeline components in response to the Soviet role in Poland and our Allies are resolved not to undermine the effectiveness of those measures.

The CHAIRMAN. Thank you very, very much for your testimony today.

Now if you can sneak out rather quietly without the usual transition period, we have Senator Cohen with us who is not a member of this committee, but I am happy to welcome my good friend and colleague from Maine to this committee for his remarks today. Senator Cohen.

STATEMENT OF SENATOR WILLIAM S. COHEN

Senator COHEN. Mr. Chairman, let me offer just a few observations, based upon the testimony I've just heard from the three preceding witnesses. First, let me say that I am not quite as quick as the chairman to criticize the Germans or other West Europeans. After all, it was the United States that formulated the policy of détente. It was the creation of a prior Republican administration, certainly, in the early 1970's that talked to not only the United States but to members of the NATO Alliance about the benefits that would be derived from détente, that, in fact, it would be a policy of weaving a web of interlocking interests so that if these interests became settled and the Soviet Union were to behave or engage in dangerous, aggressive or hostile behavior or in any way that was inimical to the United States and Western interests, that they would certainly be forced to face the penalty.

The difficulty is that during the 1970's we became like a spider who is suffering from brain damage, in that we have woven a web in which we find ourselves unable to retrace our steps without getting stuck in that web. So we have created interlocking interests from which we find difficulty in retracting.

I mention the wheat deal by way of example. To the extent that our farmers want to sell wheat to the Soviet Union, we find a policy of imposing penalties upon the Soviets for the invasion into Afghanistan suddenly being reversed, because our economic interests have been affected by it. I would say the same thing would probably obtain with the Yamal pipeline. For example, I did not have an opportunity to hear all the witnesses, but I commend President Reagan for his statement in Ottawa back in September. The difficulty with that statement, however, is that while it articulated a policy on the part of the United States, it was followed 3 weeks later by a change in that policy or perhaps an inconsistent policy of allowing the licensing for export of 100 Caterpillars and tractors, pipelayers which, although not designated for the Yamal pipeline, nevertheless sent a very clear signal to our other allies, namely, Japan, that we weren't quite as serious about our opposition to that pipeline.

So, while I have a good deal to complain about our Western allies' attitude and, perhaps, lack of courage in some instances, I think we have a good deal of responsibility to bear ourselves.

The CHAIRMAN. If the Senator would yield at that point, may I say that I would agree with what he has just said. I would add to that criticism—I suppose I've said it so many times in this committee that it did not bear repeating again today, but just let me say I

subscribe completely to our share of the blame, as you have just discussed.

Senator COHEN. Let me continue with respect to the Germans, since they're coming under increasing scrutiny and criticism from myself and others. I don't believe the West Germans have more faith in the Soviet Union as a reliable source of energy, have more faith in the Soviet system, than they do in the United States. I think that they face a different reality. There is a fear of the growing Soviet military might and some very serious doubts about, No. 1, the military capability of the United States and, No. 2, the willpower to use that in their defense.

So I think their faith in the Soviets is really born of fear and intimidation, which again, we must bear a measure of responsibility for. If they see things more clearly, I would suggest that their clarity of vision has come about by virtue of the proximate distance of the enemy from their borders. And that would be my own assessment.

Frankly, I think as far as a policy on the part of the United States, the greatest challenge that we face—and I'll put it in its starkest terms—is that we have to develop a policy which is able to mobilize American public opinion to the need for greater military capability without driving the West Europeans up and over the Berlin Wall.

It seems to me that is as stark and as brutal as I can phrase it.

Now let me come to the Yamal line, which I think is the subject of these hearings. I had two questions which I was prepared to address: What are the short-term and long-term implications to the Alliance of financing and constructing the project? I would say that the short-term implications are that this would do little to discourage the Western Europeans from a notion which has taken root in recent years, that there can be a separate détente for Europe. In other words, the United States could be called upon to bear a large portion of military responsibility for defending Europe, while they're in a position to carry on a separate trade arrangement with the Soviets. I think that's a very dangerous doctrine, but nonetheless it's one that has taken root and is spreading. I think to the extent that the Alliance does participate in the construction of that pipeline, it will certainly add weight to that notion.

The long-term implications are, in my judgment, that it will succeed in Hollandizing Western Europe. I think to the extent that the Europeans—principally, West Germany—become 20 or 30, and some might even suggest 40 percent dependent on gas supplies from the Soviet Union, what you will see is a classic case of when the Soviets engage in disruptive, aggressive, hostile behavior, the West Germans again will be faced with some questions. For example, an invasion of Poland. I suggest if the pipeline were already constructed, you would have a situation where the West Germans would say:

> After all, Poland is vital to the security interests of the Soviet Union. After all, Poland is part of the Soviet sphere. After all, it's a matter of internal political affairs. After all, it's none of our business. And after all, keep the gas flowing.

I suspect that's the kind of reaction you will have in the future, whenever the Soviets engage in behavior which we conclude is not in the interests of Western security. So I think that's the greatest

fear that one should have about the construction of the pipeline. I recall that Chancellor Schmidt, back in the early 1960's, wrote several books. One book he wrote contained a chapter which said that the NATO nations must be so politically structured, so economically secure, so militarily defended that no individual member could be subject to blackmail by the Soviet Union. I think that is a good policy for the 1960's, the 1970's, the 1980's, and into the future.

But there is one added factor now, that perhaps Chancellor Schmidt might rework that and add one word. Should it be so structured not only politically, economically and militarily, but rather from an energy point of view. It must be so structured for its energy independence, that it can't be subject to blackmail.

That is really the issue that is at stake here. I believe if that pipeline is constructed, you will find the Soviets engaging in the kind of extortion or blackmail that we've seen in the past that they're capable of. So, from the short-term point of view it's going to give credence to a separate détente. From the long-term point of view, I think it's going to do much to neutralize any kind of negative reactions from the Europeans in the face of aggressive Soviet behavior.

The second question I'd like to address is, what about the Office of Strategic Trade. Last year, in testifying on behalf of your bill, which I endorsed and supported, you were faced with some fundamental questions. No. 1, do we have a firm foreign policy? The answer in the past has been no. Second, do we have an existing mechanism to implement that policy? The answer is, We have a mechanism, but it doesn't implement the policy.

I think we have come to the point where we may have to reverse a standard tradition. That is, you formulate a policy in the initial instance. Then you formulate a mechanism to implement that policy. I'm almost coming to the conclusion that perhaps the reverse has to be done, that you have to change the mechanism with the hope that you can force a more coherent policy and a more consistent policy.

As it stands now, given the fact that the policy itself is somewhat infirm or flaccid, the mechanism that we have is so diffuse, so inconsistent in its application, that you have no policy and you have no mechanism for all practical purposes. I think the classic case was the one which I mentioned. The President one day is saying we're against the pipeline—"Please, Europeans, don't move in that direction"—and 3 weeks later, we have the Commerce Department authorizing the licensing of those Caterpillar tractors and pipelayers.

So, to the extent that we have a continuation of that practice, it seems to me the Europeans are going to continue to be justifiably concerned that this country, No. 1, doesn't have a policy, and No. 2, what policy it articulates is inconsistent with the actual practice.

Some years ago we had a statement that was articulated, "Watch what we do, not what we say." And that became, I think, a code word for calculated duplicity, as far as I'm concerned. I would hope that we would change that, that we would not say one thing and do something quite the opposite, because that not only undermines

the kind of faith and reliability that we are looking for in our allies, it certainly undermines the United States.

I come here today to express my support for a change in the mechanism. I know that you are not one who is eager to create new agencies or new bureaucracies. Frankly, though, I have not seen any change in policy that has been pursued in the past, nor have I seen a change in the mechanism which is designed to insure that strategic materials do not get transferred to the Soviet Bloc. So I would lend my support for whatever change has to be made, whether it's one of policy or in mechanism.

The CHAIRMAN. I appreciate very much your willingness to come here today. Senator Cohen has been deeply involved in this issue for a number of years, the whole time he has been in the Senate—and possibly when he was in the House of Representatives. I appreciated your cosponsorship of that bill last year, and you're right, I normally would not like to create something new, but as I see it now, nearly a year after a new administration coming in, and Mr. Perle's remarks about overcoming the bureaucracy, maybe that is the only way to do it, change the mechanisms first. It is backward; no doubt about it.

Obviously, nothing will be done the rest of this year. But I look forward to working with you, Senator Cohen, to see if we can revise that bill in consultation with people in the administration, and come up with some new mechanisms that might, for a change, stimulate policy, because the holes are still there, problems within the three departments are still there.

And you're absolutely right, it does no good to announce a particular policy and then do something that implements just the opposite, like the sale of those Caterpillars, because we know where they are going to be used, there's no doubt about it whatsoever. So I thank you very much for your willingness to come today.

Next before the committee I would like to invite Dr. John Gibbons, Director of the Office of Technology Assessment, to come to the witness table. And I might, because we are so far into the lunch hour, invite Dr. Kramish and Mr. Robinson to come to the table at the same time.

STATEMENT OF JOHN H. GIBBONS, DIRECTOR, OFFICE OF TECHNOLOGY ASSESSMENT, ACCOMPANIED BY RONNIE GOLDBERG

Mr. GIBBONS. Thank you, Mr Chairman. I am pleased to appear before the committee this morning. The research I will report on was conducted as part of a major OTA study entitled "Technology and Soviet Energy Availability," which will be released next week. The findings I will discuss with you today form a small but important part of that total assessment.

I am accompanied by Dr. Ronnie Goldberg, who directed that study for OTA.

I propose to limit my remarks to a summary of the major points which emerged from our inquiries on the pipeline. These will be: First, the technical characteristics and feasibility of the pipeline

itself; second, its importance to the Soviet Union and its role in the Soviet energy system; finally, its importance to America's allies, including both Western Europe and Japan.

PIPELINE INFORMATION OFTEN MISLEADING

Information on the status and progress of the pipeline is fragmentary and often misleading or even contradictory. There are two basic reasons why that situation exists. First, negotiations are obviously still underway. The project will involve a large number of separate contracts, many of which have yet to be signed, and many details remain unresolved. Second, there is no single authoritative source for information on that pipeline. We have to collect data from a variety of periodicals in a number of different countries, and then use our best judgment to deal with gaps and also with apparent contradictions.

It's very difficult, if not impossible, to verify the accuracy of much of our information. We attempted to carefully distinguish areas of conjecture and controversy from areas where we felt we had verifiable facts. It must be recognized, however, that many aspects of the pipeline project and of its consequences involve matters subject to varying interpretation.

First, Mr. Chairman, the Western Siberian gas export pipeline. A lot of controversy has surrounded the question of the extent of Soviet oil resources and the prospects for oil production in this decade. Certainly no such debate arises in the case of gas. Soviet proven gas reserves are tremendous. They may be likened to the oil reserves of Saudi Arabia. Moreover, there are no technological barriers to greatly increased gas production in the Soviet Union. The extent to which the Soviets can capitalize on their great gas potential rests most importantly on the rate of construction of new pipelines for both their domestic as well as export use.

The pipeline at issue here is popularly called Yamburg. That's a super giant gas field located in West Siberia near the Arctic Circle. But it in fact is not expected to be developed until at least the end of this decade. Until that time, gas destined for Western Europe will come from Urengoy, the world's largest single gas field, located about 150 miles south of the Yamburg field. The construction of a 56-inch pipeline which parallels the existing Northern Lights line is well underway, and it is scheduled to be put in service in about 3 years. The line which is commonly referred to as Yamburg is one of several proposed additional pipelines. Soviet plans now call for a high-pressure pipeline which may eventually have two separate legs. It seems that the Soviet Union plans to build the first of these by mid-decade, possibly reserving the latter until the Yamburg field itself is tapped.

There are important economic advantages to these Soviet plans. Because Urengoy is already a producing field, it will be significantly cheaper for the Soviet Union to develop it than to initiate operations at Yamburg. Moreover, key segments of the new pipeline will follow existing routes, thus reducing costs.

Because of the nature of the Soviet economy, and the manner in which prices are set, it's extremely difficult for us to calculate the total cost of the pipeline. Some estimates have ranged as high as

$40 billion. The most commonly heard figure is $15 to $20 billion, but it's not clear whether this represents the total borrowing costs and whether it covers one or both of the legs.

The new pipeline will allow a significant increase in Soviet natural gas exports to as many as 10 Western European countries. In 1980, the U.S.S.R. exported about 24 billion cubic meters of gas. That's about nine-tenths of a quad. Incidentally, that number corresponds to slightly over 1 percent of total U.S. annual consumption. It is estimated that with the new pipeline these exports could increase to perhaps 90 to 105 billion cubic meters by 1990; that is, an expansion of about a factor of four. To put this in perspective, Mr. Chairman, in 1980, the U.S.S.R. exported about 1.3 million barrels of oil a day to Western Europe. The 1990 natural gas export projections are the equivalent of 1.5 to 1.7 million barrels a day of oil.

It's important to note that if the pipeline is developed as envisaged, Soviet gas exports will probably largely replace their oil exports by the end of the decade. Nevertheless, the size of the projected gas sales means that both the energy and hard currency values of Soviet exports to the West could, in fact, increase slightly during this period.

Construction of the pipeline will require massive Western equipment imports and related financing. The U.S.S.R. itself produces all of the necessary equipment, including large diameter pipe, and it has experience in pipeline construction in the harsh environment of Western Siberia; however, both the superior quality of Western equipment and the sheer scale of the project dictate the use of imported pipe, pipelaying and compression equipment, if the line is to be completed in a timely and efficient manner.

NATURAL GAS KEY TO SOVIET ENERGY FUTURE

The second of my three points, Mr. Chairman, has to do with the importance of the pipeline to the Soviet Union. Natural gas is certainly the key to the Soviet energy future in this decade. It is the energy sector with by far the best performance record over the past half decade, and there is evidence that it has been accorded priority in investment during the present 5-year plan period. Gas plays a vital role in both domestic energy plans and in the Soviet Union's export prospects, and increasing the gas pipeline network is central to both of these concerns. With respect to domestic concerns, with oil and coal production slated to rise only modestly at best, incremental domestic energy demand within the Soviet Union must be covered by the large projected increases in gas production, and to a considerably lesser extent nuclear power.

Gas is important here in three respects. First, to the extent that it can replace oil as a hard-currency-earning export, domestic oil consumption can grow faster than domestic oil production. Second, gas can also be substituted for oil in domestic applications, assuming it can be transported and utilized. Third, shortfalls in gas output would almost certainly be translated into domestic energy shortages—an eventuality that the Soviet economy is certainly not well-equipped to handle. Thus, expansion of gas pipeline capacity

would greatly reduce the probability of internal energy shortages within the Soviet Union.

Now, with respect to exports. Soviet planners see gas replacing oil as their single most important source of hard currency. According to the Wharton Econometric Forecasting Associates, in 1979 Soviet earnings from natural gas sales amounted to about $1½ billion. That is a little over 10 percent of all Soviet hard currency receipts. If the new export pipeline is built, this share is likely to rise to about 35 to 40 percent by 1990, while the share of other fuels would decline from the current 58 percent down to about 35 to 40 percent.

Estimates of the amount of these earnings are tenuous, but it is also likely that these gas sales would allow the Soviet hard currency revenues to increase in absolute terms above the 1980 levels.

It's fair to say that given this dual importance, failure to increase the gas pipeline network sufficiently to allow for both increased domestic consumption and increased gas exports would seriously damage Soviet economic prospects in the present decade. In the absence of imported materials and equipment for pipeline construction, the Soviet Union would be expected to make a massive effort to complete the pipeline itself.

This effort would seriously strain their steel economy and would only be achieved at a greater cost and with significant delays. If the reluctance of the West to sell the Soviet Union the wherewithal to build the pipeline were accompanied by a refusal to purchase Soviet gas, however it might be delivered, the consequences for the Soviet economy would be even more serious.

IMPORTANCE OF PIPELINE TO WESTERN NATIONS

Finally, the importance of the pipeline to U.S. allies. We studied the energy and energy-related trade relations between the Soviet Union and Japan, West Germany, France, Italy, and Great Britain. While the importance of such trade with the U.S.S.R. differs markedly amongst these nations, and the attitude toward that trade differs, several generalizations are possible. Although trade with the U.S.S.R. makes up only a small portion of the overall trade of these countries, in 1979 energy-related goods constituted nearly one-half of Japanese exports to the Soviet Union, one-third of the Italian, about a quarter of the West German and French, and about 10 percent of British exports to the Soviet Union. The corresponding figure for the United States was only 7 percent.

In absolute terms, this translates into more than a billion dollars worth of energy-related exports for Japan, nearly that amount for West Germany, and almost half a billion each for France and Italy. Most of these exports were destined for Soviet oil and gas industries. The most important part of the trade was in the large diameter steel pipe used for gas pipelines.

These nations also import energy from the Soviet Union. The most important Soviet energy commodity for Western Europe now, and probably for Japan in the future, is natural gas. In 1979 about 24 percent of Italy's and about 16 percent of West Germany's total gas requirements were provided by the Soviet Union.

While it is very difficult to make precise estimates of impact of projected Western Siberian gas deliveries on the energy balance of each country, reasonable estimates are that by 1990 both West Germany and France could depend on the Soviet Union for about 30 percent of their gas imports and that Italy could receive about 50 percent of its imported natural gas from the Soviet Union. The corresponding percentages for total gas and total energy consumption would depend on the energy mix of each country at that time. This is, of course, a highly uncertain matter. It must be remembered that to some extent Soviet gas will replace rather than supplement the Soviet oil that these nations already receive. If the overall energy dependence on Soviet exports of each nation examined in our study were to be doubled, that dependence would range from about 3 percent in the case of Britain to nearly 20 percent in the case of Italy.

LEVELS OF RISK OR DEPENDENCE ON PIPELINE

The term "energy dependence" must be used with care, however. There are a number of different ways to calculate the degree of "dependence" of Western nations on Soviet energy. The levels change, depending on whether one is looking at individual countries or a variety of the multilateral organizations, each of which have slightly different memberships, to which our allies belong. Moreover, levels of dependence are higher if one looks at Soviet energy imports as a percent of all energy imports than if one looks at them in the context of total energy requirements.

The data thus provide no unambiguous indicators of the levels of risk or dependence. Individuals make risk assessments based on their perceptions of vulnerability and their judgments about energy supply and demand alternatives—factors which cannot be precisely measured. Incidentally, if we assume the increased dependence of Western Europe and Japan on the Soviet Union that we have just postulated, that dependence would still be considerably weaker than their dependence on OPEC.

It is OTA's belief that the Western Siberian pipeline project must be regarded as a fait accompli—in the absence, of course, of any cataclysmic international political or economic developments. From the perspective of each of the allied nations we examined, there are important energy, economic, and political factors which have led to their assessment that the benefits of the project outweigh its potential risks.

Western Germany, France, and Italy are all eager to decrease their dependence on OPEC oil. They seek to diversify their energy sources both by type of energy and by supplier. Importing more Soviet gas is seen as a way to accomplish both of those objectives. It must be understood that the decision to increase the importance of natural gas in the energy supply of these countries has been taken in part because it is a fuel greatly preferred to either coal or nuclear power.

The alternative of increased coal imports from the United States and elsewhere is not practicable in this decade. In addition, coal is much less attractive on environmental grounds to Europeans. The growth of nuclear power production is impeded by a strong and

growing antinuclear movement, by long construction times, and by high capital costs.

Moreover, past experience with the Soviet Union has led to the perception, at least, that it is a reliable supplier, and its potential for continued reliability to those Western European nations is judged to be at least as great as that of OPEC.

Perhaps even more compelling, Mr. Chairman, are the economic arguments for the involvement of America's Western trading partners in this project. West Germany, France, Italy, Britain, and Japan all look to the project as a way to increase sales of energy equipment and technology. In West Germany, for instance, much of this trade will be concentrated in the steel industry, which has strongly supported the West Siberian project. There is evidence that a significant number of jobs depend on sales of steel pipe to the U.S.S.R. In short, important industrial sectors in both Western Europe and in Japan have strong interests in trade with the Soviet Union.

There is also a political dimension to the decisions of many of these countries to proceed with the pipeline deal. West Germany, for instance, has a vital interest in providing the Soviet Union with incentives to moderate its behavior in Europe and to help foster improved relations over Berlin. Japan looks to trade and energy relationships with the U.S.S.R. as an important counterweight to its growing relationship with the People's Republic of China. These countries are close neighbors of the Soviet Union. Their perceptions of the political utility and also the risks of increased energy interdependence are colored by their geographic positions as well as by their long histories as trading nations.

None of the countries discussed here is unmindful of the risks associated with increasing imports of Soviet energy. A sudden cutoff of gas from the U.S.S.R. would impact each differently. But none would be immune from hardship, particularly in the context of any world energy crisis. Each country has developed its own guidelines for acceptable levels of Soviet imports, and its own contingency plans, including storage, stockpiling, identification of alternative suppliers, in the event of a shortfall of Soviet gas.

In our judgment, all the potential recipients of the Soviet gas would benefit from more contingency planning, and such planning would be most effective if it were undertaken jointly by all the nations involved. This could reduce the ability of the Soviet Union to divide Western Europe by playing one country off against the other; however, the prospects for tighter coordination of Western European policy toward trade and energy relations with the U.S.S.R. appear dim.

In conclusion, Mr. Chairman, the proposed western Siberian gas export pipeline is very important both to the Soviet Union and to the Western nations, including Japan, who will sell equipment for the project, receive energy from it, or both. The gas pipeline project will mark a significant new development in East-West relations. Its completion will be tantamount to a quantum increase in Western equipment exports to and the credit financing for the U.S.S.R. In addition, while it is difficult to make precise estimates of the amounts of gas the pipeline will provide, dependence on both

Soviet gas in particular and Soviet energy in general will probably increase in West Germany, France, and Italy.

Even more than the increased steel and machinery export and import opportunities which the project offers, the implied change in political climate will offer both risks and opportunities for both sides. Indeed, the result could be an unprecedented level of East-West interdependence in which Western nations increase their exports and diversify their energy supplies at the risk of providing opportunities for the Soviet Union to challenge the unity of the Western alliance by exerting pressure on individual nations. In turn, the U.S.S.R. would insure and perhaps increase its hard currency revenues at the risk of becoming enmeshed in the world economy as those revenues become necessary for sustained economic growth.

Interruptions in the pipeline deal would therefore likely hurt both sides, although shortages of gas would be felt much more quickly than the reduction of the flow of hard currency. The relative weight assigned to these risks is a matter of political judgment which rests on the observers' beliefs about the objectives and intentions of the Soviet Union and views of the validity of the concept of détente. Such judgments have in the past tended to differ markedly within the United States as well as between the United States and its allies.

The critical question is whether Western nations, either individually or in concert, can act to limit the risks involved. One area in which joint action would be useful is in increased planning of contingency arrangements in the event of a supply shortfall. Some observers argue that a joint Western European policy is not feasible, and that the past 10 years of limited progress in this area tends to confirm such a view.

The question is whether there are any viable means for limiting the risks, while capturing the benefits, of increased energy dependence on the Soviet Union. OTA's analysis suggests that under current conditions, predispositions in both Western Europe and Japan would preclude the success of any attempt to limit or delay this project. A more fruitful approach, therefore, would be to develop, among other things, the mechanisms for anticipating and ameliorating any negative consequences for the Western alliance which this project might engender.

Mr. Chairman, this concludes my prepared statement. I will supply you and the committee with copies of OTA's full report as soon as it becomes available, and suggest that a summary of that report might be included in the record of these hearings.[1] Dr. Goldberg and I will be happy to answer any questions at this time.

[The complete statement follows:]

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[1]The publication referred to, titled "Technology and Soviet Energy Availability—Summary" has been published by the Office of Technology Assessment and cannot be reprinted by this committee. It will be retained in the committee files.

TESTIMONY OF DR. JOHN H. GIBBONS, DIRECTOR

OFFICE OF TECHNOLOGY ASSESSMENT

BEFORE THE COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

U.S. SENATE

NOVEMBER 12, 1981

THE WEST SIBERIAN GAS EXPORT PIPELINE

Mr. Chairman,

I am pleased to appear before this committee and to share with you the results of OTA's research on the West Siberian gas export pipeline. This research was conducted as part of a major OTA study, Technology and Soviet Energy Availability, which will be released on Wednesday, November 18, in hearings before the Investigations Subcommittee of the House Committee on Science and Technology. The findings I am about to discuss with you today form a small, but important, part of this comprehensive assessment. I am accompanied by Dr. Ronnie Goldberg, who directed the study.

In order to allow ample time for your questions, I propose to limit my remarks to a summary of the major points which emerged from our inquiries on the pipeline. These fall into three areas: 1) The technical characteristics and feasibility of the pipeline itself; 2) its importance to the Soviet Union and role in the Soviet energy system; and 3) its importance to America's allies, including both Western Europe and Japan.

This discussion must be prefaced with an important qualification. Information on the status and progress, as well as on the implications, of the pipeline is fragmentary and often misleading or contradictory. There are two basic reasons why this situation exists. First, negotiations are still underway. The project will involve a large number of separate contracts, many of which are yet to be signed, and many details remain unresolved. Second, there is no single

authoritative source for information on the pipeline. OTA had to collect its data from a variety of periodicals and interviews in a number of different countries, and use its best judgment to deal with gaps and apparent contradictions. It is very difficult, if not impossible, to verify the accuracy of much of our information, and there has been a great deal of confusion over the logistics of the pipeline and its implications for both the East and the West. In its work on the pipeline OTA has attempted to distinguish carefully areas of conjecture and controversy from areas of verifiable 'fact.' It must be recognized, however, that many aspects of the pipeline project and of its consequences involve matters subject to varying interpretation.

1. THE WEST SIBERIAN GAS EXPORT PIPELINE

A great deal of controversy has surrounded the question of the extent of Soviet oil reserves and the prospects for oil production in this decade. No such debate arises in the case of gas. Soviet proven gas reserves are tremendous; indeed they may be likened to the oil reserves of Saudi Arabia. Moreover, there are no technological barriers to greatly increased gas production in the U.S.S.R. The extent to which the Soviet Union can capitalize on its great gas potential rests most importantly on the rate of construction of new pipelines, both for domestic use and for export.

The pipeline at issue here is popularly called 'Yamburg.' This is a misnomer. Yamburg is a supergiant gasfield located in West Siberia near the Arctic Circle, but it is not expected to be developed until at least the end of this decade. Until that time, gas destined for Western Europe will come from Urengoy, the world's largest gasfield, 150 miles to the south of the Yamburg field. Initially, this gas will be transported through additions to the existing pipeline network. For instance, construction of a 56-inch pipeline which parallels the existing Northern Lights line is already well underway, and is scheduled to be put into service in 1984. The line

which is commonly referred to as "Yamburg" is one of several proposed additional pipelines. Soviet plans now call for a high pressure pipeline which may eventually have two legs. It seems that the U.S.S.R. plans to build the first of these by mid-decade, possibly reserving the latter until the Yamburg field itself is tapped.

There are important economic advantages to these plans. Because Urengoy is already a producing field, it will be significantly cheaper for the U.S.S.R. to develop it than to initiate operations at Yamburg. Moreover, key segments of the new pipeline will follow existing routes, thus reducing construction and borrowing costs. Because of the nature of the Soviet economy and the manner in which prices are set, it is extremely difficult to calculate the total cost of the pipeline. Some estimates have ranged as high as $40 billion. The most commonly heard figure is $15-20 billion, but it is not clear whether this represents total borrowing costs, and whether it covers one or two legs.

The new pipeline will allow a significant increase in Soviet natural gas exports, to as many as ten West European countries. In 1980, the U.S.S.R. exported about 24.5 billion cubic meters (.865 quads) of gas to Western Europe. It is estimated that with the new pipeline, these could increase to 90-105 bcm by 1990. To put this in perspective, in 1980, the U.S.S.R. exported about 1.3 million barrels of oil a day to Western Europe. The 1990 natural gas export projections are the equivalent of 1.5 to 1.7 million barrels of oil a day.

It is important to note that, if the pipeline is developed as envisaged, Soviet gas exports will probably largely replace their oil exports by the end of the decade. Nevertheless the size of the projected gas sales means that both the energy and hard currency values of Soviet exports to the West could increase somewhat during this period.

Construction of this pipeline will require massive Western equipment imports and related financing. The U.S.S.R. itself produces all of the necessary equipment,

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including large diameter pipe, and it has experience in pipeline construction in the harsh enviornment of West Siberia. However, both the superior quality of Western equipment and the sheer scale of the project dictate the use of imported pipe, pipelaying, and compression equipment if the line is to be completed in a timely and efficient manner.

2. THE IMPORTANCE OF THE PIPELINE TO THE U.S.S.R.

Gas is the key to the Soviet energy future in this decade. It is the energy sector with by far the best performance record in the past five years, and there is evidence that it has been accorded priority in investment during the present Five Year Plan (FYP) period. Gas plays a vital role in both domestic energy plans and in the U.S.S.R.'s export prospects, and increasing the gas pipeline network is central to both of these.

First, with oil and coal production slated to rise only modestly, incremental domestic energy demand in the U.S.S.R. must be covered by the large projected increases in gas (and, to a lesser extent, nuclear power) production. Gas is important here in three respects. To the extent that it can replace oil as a hard currency-earning export, domestic oil consumption can grow faster than domestic oil production. Gas can also be substituted for oil in domestic applications, assuming that it can be transported and utilized. Finally, shortfalls in gas output would almost certainly be translated into domestic energy shortages, an eventuality that the Soviet economy is not well-equipped to handle. Thus, expansion of gas pipeline capacity would greatly reduce the probability of internal energy shortages.

Second, Soviet planners see gas replacing oil as the U.S.S.R.'s single most important source of hard currency. According to the Wharton Econometric Forecasting Associates, Inc., in 1979, Soviet earnings from natural gas sales amounted to about $1.5 billion, 11% of all hard currency receipts. If the new

export pipeline is built, this share is likely to rise to about 35-40 % by 1990, while the share of other fuels (mostly crude oil and oil products) would decline from the current 58% to 35-40%. Estimates of the amount of these earnings are tenuous, but it is also likely that these gas sales would allow Soviet hard currency revenues to increase in absolute terms above 1980 levels.

It is fair to say that given this dual importance, failure to increase the gas pipeline network sufficiently to allow for both increased domestic gas consumption and greatly increased gas exports would seriously damage Soviet economic prospects in the present decade. In the absence of imported materials and equipment for pipeline construction, the Soviet Union would be expected to make a massive effort to complete the planned pipelines itself. This effort would seriously strain the Soviet steel industry and would only be achieved at greater cost and with significant delays. If the reluctance of the West to sell the U.S.S.R. the wherewithal to build the pipeline were accompanied by a refusal to purchase Soviet gas, however it might be delivered, the consequences for the Soviet economy would be even more serious.

3. THE IMPORTANCE OF THE PIPELINE TO U.S. ALLIES

OTA has studied the energy and energy-related trade relations between the Soviet Union and Japan, West Germany, France, Italy, and Great Britain. While the importance of, and attitudes toward, such trade with the U.S.S.R. differ markedly among these nations, several generalizations are possible. Although trade with the U.S.S.R. makes up only a small portion of the overall trade of these countries, in 1979 energy-related exports constituted nearly one-half of Japanese, one-third of Italian, approximately one-quarter of West German and French, and about ten percent of British exports to the Soviet Union. (The corresponding figure for the United States was 7 percent.) In absolute amounts, this translates into more than

$1 billion worth of energy-related exports in 1979 for Japan, nearly that amount for West Germany, and almost one-half billion each for France and Italy. Most of these exports were destined for the Soviet oil and gas industries; the most important pa of the trade was in the large diameter steel pipe used for gas pipelines.

These nations also import energy from the Soviet Union. The most important Soviet energy commodity for Western Europe now (and for Japan in the future) is gas. In 1979, about 24 percent of Italy's and about 16 percent of West Germany's total gas requirements were provided by the U.S.S.R. While it is very difficult to make precise estimates of the impact of projected West Siberian gas deliveries on the energy balance of each country, reasonable estimates are that by 1990 both West Germany and France could depend on the Soviet Union for about 30 percent of all gas imports and that Italy could receive about 50 percent of its imported gas from the U.S.S.R. The corresponding percentages for total gas and total energy consumption would depend on the energy mix of each country at the time - a highly uncertain matter. It must be remembered that to some extent Soviet gas will replace, rather than supplement, the Soviet oil these nations already receive.

If the overall energy dependence on Soviet exports of each nation examined in the OTA study doubled, that dependence would range from about 3 percent in the case of Britain to nearly 20 percent in the case of Italy. The term 'energy dependence' must be used with care, however. There are a number of different ways to calculate the degree of 'dependence' of Western nations on Soviet energy. These levels change depending upon whether one is looking at individual countries, or at any of the variety of multilateral organizations (OECD, IEA, NATO, EEC, ECE), each of which have slightly different memberships, to which America's allies belong. Moreover, levels of dependence are higher if one looks at Soviet

energy imports as a percentage of all imports, than if one looks at them in the context of total energy requirements. The data thus provide no unambiguous indicators of levels of risk or dependence. Individuals make risk assessments based on their perceptions of vulnerability and their judgments about energy supply and demand alternatives -- factors which cannot be precisely measured.

It is OTA's belief that the West Siberian pipeline project must be regarded as a fait accompli -- in the absence of course of any cataclysmic international political or economic developments. From the perspective of each of the allied nations examined, there are important energy, economic, and political factors which have led to the assessment that the benefits of the project outweigh its potential risks.

West Germany, France, and Italy are all eager to decrease their dependence on OPEC oil. They seek to diversify their energy sources both by type of energy and by supplier. Importing more Soviet gas is seen as a way to accomplish both objectives. It must be understood that the decision to increase the importance of gas in the energy supply of these countries has been taken in part because it is a fuel greatly preferred to either coal or nuclear power. Increased coal supplies have been largely rejected on enviornmental grounds. The growth of nuclear power production is impeded by an extremely strong, and growing, anti-nuclear movement. Moreover, past experience with the Soviet Union has led to the perception that it is a reliable supplier, and its potential for continued reliability is judged to be at least as great as that of OPEC.

Perhaps even more compelling are the economic arguements for the involvement of America's Western trading partners in the pipeline project. West Germany, France, Italy, Britain, and Japan all look to the project as a way to increase sales of energy equipment and technology. In West Germany, for instance, much of this trade will be concentrated in the steel industry, which has

strongly supported the West Siberian project. There is evidence that a significant number of jobs depend on sales of steel pipe to the U.S.S.R. In short, important industrial sectors in both Western Europe and Japan have strong interests in trade with the U.S.S.R.

There is also a political dimension to the decisions of many of these countries to proceed with the pipeline deal. West Germany, for instance, has a vital interest in providing the Soviet Union with incentives to moderate its behavior in Europe and to help foster improved relations over Berlin. Japan looks to trade and energy relations with the U.S.S.R. as important counterweights to its growing relationship with the Peoples Republic of China. These countries are close neighbors of the Soviet Union. Their perceptions of the political utility -- and also of the risks -- of increased energy interdependence are colored by their geographic positions, as well as by their long histories as trading nations.

None of the countries discussed here is unmindful of the risks associated with increasing imports of Soviet energy. A sudden cutoff of gas from the U.S.S.R. would impact each differently, but none would be immune from hardship, particularly in the context of any world energy crisis. Each country has developed its own guidelines for acceptable levels of Soviet imports and its own contingency plans -- storage facilities and stockpiles, identification of alternative suppliers --in the event of a shortfall of Soviet gas. In OTA's judgment, all the potential recipients of this gas would benefit from more contingency planning. Such planning would be most effective if it were undertaken jointly by all the nations involved. This could reduce the ability of the Soviet Union to divide Western Europe by playing one country off against another. However, the prospects for tighter coordination of West European policy toward trade and energy relations with the U.S.S.R. appear dim.

In conclusion, it seems fair to say that the proposed West Siberian gas export pipeline is very important both to the Soviet Union and to the Western nations (including Japan) who will sell equipment for the project, receive energy from it, or both. **The gas pipeline project will mark a significant new development in East-West relations.** Its completion will be tantamount to a quantum increase in Western equipment exports to, and credit financing for, the U.S.S.R. In addition, while it is difficult to make precise estimates of the amounts of gas the pipeline will provide, dependence on both Soviet gas in particular and Soviet energy in general will probably increase in West Germany, France, and Italy.

Even more than the increased steel and machinery export and energy import opportunities which the project offers -- and in both of these areas Western Europe and Japan's increased dependence on the U.S.S.R. would still be considerably weaker than their dependence on OPEC -- a changed political climate will offer both risks and opportunities for both sides. Indeed, the result could be an unprecedented level of East-West interdependence in which Western nations increase their exports and diversify their energy supplies at the risk of providing opportunities for the Soviet Union to challenge the unity of the Western alliance by exerting pressure on individual nations. In turn, the U.S.S.R. would ensure and perhaps increase its hard currency revenues at the risk of becoming enmeshed in the world economy as these revenues become necessary to sustained economic development. Interruptions in the pipeline deal would therefore hurt both sides, although shortages of gas would be felt more quickly than the reduction of the flow of hard currency. The relative weight assigned to these risks is a matter of political judgment which rests on the observers' beliefs about the objectives and intentions of the Soviet Union and views of the validity of the concept of detente. Such judgments have in the past tended to differ markedly within the United States as well as between the United States and its allies.

The critical question is whether Western nations, either individually or in concert, can act to limit the risks involved. One area in which joint action would be useful is in increased planning of contingency arrangements in the event of a supply shortfall. Some observers argue that a joint West European policy is not feasible, and that the past ten years of limited progress in this area tends to confirm such a view. The question is whether there are any viable means for limiting the risks, while capturing the benefits, of increasing energy dependence on the Soviet Union. OTA's analysis suggests that under current condiditions, predispositions in both Western Europe and Japan would preclude the success of any attempt to limit or delay the project. A more fruitful approach, therefore, would be to develop mechanisms for anticipating and ameliorating any negative consequences for the Western alliance which this project might engender.

Mr. Chairman, this concludes my prepared statement. I will supply for the record a copy of OTA's full report on Soviet energy as soon as it is available. Dr. Goldberg and I would be happy to answer any questions.

The CHAIRMAN. Thank you very much, Dr. Gibbons.

We would appreciate those supplemental inserts for the use of the committee.

Let me just ask you two questions. We will submit the rest of them for the record. First of all, you say in your testimony that failure to increase the gas pipeline network sufficiently to allow for both increased domestic gas consumption and greatly increased gas exports would seriously damage Soviet economic prospects in the present decade. I think that is a very important finding. Could you elaborate on that statement for me?

Dr. GIBBONS. I will be pleased to, Mr. Chairman. I would also like to invite Dr. Goldberg to join me if she has additional points to make.

Our feeling is that the source of hard currency for the Soviet Union, which has been of course very strongly dependent on their export of oil, will be shifting rather steadily from oil to gas during this decade, and that the assured continuance of hard currency flows to the Soviet Union is fundamental to their economic growth prospects.

SOVIET ECONOMIC PROSPECTS DECLINING

Dr. GOLDBERG. The Soviet Union's economic prospects for this decade in general are not good. Their rate of economic growth is declining. Their growth in domestic consumption is declining. The importance of gas in this economy has to be seen in the context of other energy supply prospects.

Their reported production figures for the first 9 months of this year show that coal production has failed even to live up to their very limited growth targets. Coal production is actually falling, although oil production has not yet peaked.

The 1981 oil production target of 610 million tons does not look like it will be fulfilled, so that while Soviet oil production in 1981 will probably be a little bit higher than it was in 1980, it will still be slightly below planned target.

In this context, if one is looking at total energy production, which is very important to the total economic picture, it is only through gas that that level can be kept up, and it is only the gas sector which seems to be proceeding on target.

The CHAIRMAN. Thank you very much.

Following on that, I would say it is a very important finding that with the competition we are in with the Soviet Union, to use the term aid and abet, according to your testimony is very appropriate; we certainly are. We are helping their general economy considerably. I guess the follow-on then would be as you mentioned that if the Soviets are forced to construct the pipeline themselves, this effort would seriously strain the Soviet steel industry. What effect would that have on Soviet defense production then if they were forced to try to put it together themselves beyond the economic disadvantages you've already testified to? Would that allow for considerable diversion away from military production if it strains their steel industry?

Dr. GIBBONS. We did not study the Soviet steel industry, and can't therefore answer your question with any certainty. In the past, however, the U.S.S.R. has appeared more willing to sacrifice growth in the domestic sectors of its economy rather than squeeze its military sector. The statement that we made had to do with what would happen if Western nations did not continue to export energy-related equipment to the Soviet Union—now, if the United States took unilateral action in this regard, our finding is that that in itself would not be a very effective move.

For example, one of the most critical imports for the Soviets is large diameter steel pipe for use in gas pipelines. We do not even manufacture that large diameter pipe. It comes from Japan and from West Germany. If we were to hold off the export of gas pipeline laying equipment it would be very quickly replaced by, I believe, equipment from Japan.

So it is the degree to which the CoCom nations could coordinate their efforts in this regard that would affect the Soviet internal problems.

The CHAIRMAN. I understand. It's similar to the grain embargo. Not very effective if we can't get others to cooperate. I understand your point. If we could ever come to a consensus we might seriously impact the Soviet's ability in the arms race was my point.

But I agree it has to be a concentrated cooperative effort.

Yes, Dr. Goldberg.

Dr. GOLDBERG. Mr. Chairman, I might point out, one difference between this case and the case of the grain embargo, however. In the case of grain, the United States was the important, I believe predominant, supplier to the Soviet Union in the first place. In the

case of oil and gas equipment and technology the United States is not the Soviet Union's predominant supplier right now.

The CHAIRMAN. I understand. That makes the point even stronger for the need for cooperation, because even being a dominant supplier of grain, still much of the production was replaced by other countries. The point was even made more strongly that if we would work together as Western allies we could have a very important impact on Soviet economic ability and their defense production.

Dr. GIBBONS. I might add, Mr. Chairman, that your notion of doing a better job of organizing ourselves in terms of export policy certainly speaks in that direction.

The CHAIRMAN. Yes, it does.

Thank you very much. I will have additional questions for you. If you would like to be excused, I would be happy to do that at this time.

[Additional material received for the record follows:]

OTA's response to the additional questions from Senator Garn

1. Reportedly, the Western Europeans do not currently consider U.S. coal to be an acceptable alternative to Soviet gas. Why not? What elements would be needed in order for U.S. coal to be an acceptable energy alternative?

There are three basic reasons for the West European view that American coal is not an acceptable substitute for Soviet gas: 1) gas is a technically preferred fuel; 2) the logistics of greatly increased American coal exports are uncertain, especially over the next five to ten years; and 3) there are non-energy, i.e. economic and political, reasons for the import of Soviet gas that do not pertain in the case of American coal.

In those areas where coal and natural gas are directly substitutable for each other, such as use as boiler fuel, gas is usually preferred for environmental reasons. More important, however, is the fact that there are many uses for natural gas in which it would be very difficult to employ coal. In some, like space heating, captial cost requirements for the changeover from gas to coal would be substantial. In other industrial processes, it is technically infeasible to use coal at present. In general, the uses of coal are limited to the the generation of steam, to metallurgical processes, and to selected direct heat processes such as cement kilns. West European nations already meet their needs in these areas through domestic coal production and imports.

Second, the feasibility and timing of expanded U.S. coal exports to West Europe are uncertain; at the same time it is reasonable to expect that increased Soviet gas deliveries could begin by or before 1985. According to the National Coal Association, current U.S. port facilities are inadequate to handle even current export levels, and the concern about port capacity is so great that foreign buyers will often not enter into long-term contracts with U.S. producers unless action is taken to expand facilities. In addition, the ability of American producers to compete in world steam coal trade is heavily dependent on ocean transport costs. It is necessary for the United States to dredge harbors and channels or make other investments to accomodate larger, more cost efficient vessels. Both of these conditions require government policies designed to

encourage the expansion of the U.S. coal industry, and reduce long lead-times. For example, announced plans for the expansion of many port facilities and at least partial dredging of several harbors to 55 foot depths will not be completed until 1990.

Third, from the West European perspective there are additional economic and political benefits to be derived from importing Soviet gas. The equipment sales which form an integral part of the West Siberian gas deal are an attractive incentive for the project. The West Europeans also see the project as an element in a meaningful detente policy of interdependence.

Given these factors, OTA's research has led it to believe that American coal cannot be considered a direct or complete alternative to Soviet gas in Western Europe. If Soviet gas were unavailable, the attraction of American coal might grow, but for many uses the gas would have to be replaced with oil. In short, West Europeans look upon American coal as an acceptable supplement to Soviet gas, but not as an alternative or replacement.

2. The Eastern European nations have been increasingly looking outside of the bloc for energy resources, as Soviet oil shipments have leveled-off or declined. For example, Romania now imports oil from the Middle East. What impact would this pipeline and its spin-offs have on the ability of the Soviet Union to meet the energy needs of the Warsaw Pact?

Expansion of the Soviet gas delivery system may well make it easier for the USSR to meet the energy needs of Eastern Europe.

First and most obviously, the capacity of the USSR to sell more gas to Eastern Europe will probably be increased. On closer examination, however, the impact of increased gas supplies may be limited by the ability of the East European countries to utilize them. In most of these countries, a large part of the incremental energy demand is a demand for oil, in part for such unique uses as transportation.

The greatest impact of the proposed gas pipelines on Eastern Europe's energy situation will therefore be indirect -- i.e. the pipelines could allow the USSR to substitute gas for oil in its own domestic use, and they would also enhance the ability of the USSR to sell gas, instead of oil, to the West to earn hard currency. Both of these measures would free oil supplies for sale to Eastern Europe. It must be noted, however, that the extent to which these supplies keep pace with incremental oil demand in Eastern Europe will depend on Soviet ability to increase or at least maintain present oil production levels; the level of Soviet domestic oil consumption; Soviet success in substituting gas for oil in its domestic applications; and the degree to which the USSR abides by its announced intentions to place a ceiling on its East European oil deliveries.

3. OTA has studied energy relations between the Soviet Union and France. Some observers have suggested that the pipeline is a good deal less important to the French than it is to the West Germans. Just how important are Soviet energy resources to France, particularly as perceived by the French?

It is certainly true that France purchases less Soviet energy than several other West European countries and its 'dependence' on such energy is correspondingly lower. For instance, West Germany in 1979 imported about twice as much Soviet energy as did France -- 17.4 million tons of oil equivalent (mtoe) versus 8.6 mtoe. Thus, in 1979 West Germany received about 9% of its total energy imports (6% of its energy requirements) from the USSR. The figures for France were 4.9% of imports and 4.7% of energy requirements.

A similar pattern exists with respect to natural gas imports alone. According to OTA's calculations, in 1979, West Germany imported from the Soviet Union about 16% of the gas it consumed, while France imported only about 7 % of its gas requirements from the USSR. (This gas was traded for Dutch gas originally destined for Italy. Since 1980, however, Soviet gas has flowed directly into France.)

These differences are probably as much attributable to the different energy balances of the two countries as to any deliberate policy decisions regarding preferred suppliers. French plans for the future composition of the country's energy balance -- particularly its ambitious nuclear program -- will likely mean that Soviet energy will continue to play a relatively less important role in France than in West Germany.

This does not mean, however, that the proposed West Siberian gas pipeline is considered unimportant in France. Aside from the desire to diversify energy by source and by supplier, France has a considerable economic interest in the pipeline. French firms have already contracted to supply significant amounts of equipment. Indeed, the principal difference between French and West German perceptions of the importance of Soviet energy interdependence appears to be the absence in the French case of the complex political incentives for cooperation with the USSR that exist in the case of West Germany.

4. For obvious reasons, France maintains a special relationship with Algeria. To what extent might natural gas shipments from Algeria eliminate any need for France to receive Soviet imports?

The Franco-Algerian relationship has often been a troubled one. The problem most relevant here is one that France shares with other West European countries: Algeria is a price "hawk" with respect to natural gas. Algeria's insistence on oil parity prices for gas have set it apart from other suppliers, and have caused negotiations for its gas to be suspended. Indeed, one of the attractions of Soviet gas has been the willingness of the USSR to compromise on its pricing formula.

There is presently no sign of willingness on the part of Algeria to alter its position. Even if it should do so it is not clear that Algerian gas could fully replace Soviet supplies either from the perspective of quantity of deliveries, or delivery schedules. Moreover, it is not clear if Algerian gas would to be supplied to France in

the form of LNG. Because it is more expensive to transport LNG than natural gas by pipeline, it is not clear that Algerian gas could be priced attractively vis-a-vis Soviet gas.

These factors aside, from the French perspective there are two other drawbacks to substituting Algerian for Soviet gas. First, an Algerian gas deal would not carry with it the lucrative equipment orders that the Soviets have placed. Second, Algeria, a member of OPEC, is a less attractive supplier than the Soviet Union from the perspective of diversifying energy sources and lessening dependence on OPEC.

In short, if price difficulties can be worked out, Algerian gas might be an important potential back-up for France if the USSR should cut-off its gas deliveries. But it is unlikely to be looked upon as a favorable direct substitute.

5. In your testimony, referring to the various "safety nets" that the Western Europeans have envisaged to hedge against vulnerability to Soviet pressure, you state that, "all the potential recipients of this gas would benefit from more contingency planning." What would be some suggestions of how the Western Europeans could improve their safety net?

It must be stated at the outset that many West Europeans believe that the greatest 'safety net' for the West Siberian gas export deal is the self-interest of the Soviet Union itself. Not only is the USSR perceived as a reliable supplier, but it is believed that the hard currency the Soviets will receive from gas sales will be a great incentive to them to maintain gas deliveries. As noted in OTA's testimony, although a cutoff of gas would be felt more immediately by the West Europeans, decline or cessation of hard currency revenues would eventually deal a severe blow to an already troubled Soviet economy. Moreover, attempts by the USSR to 'lever' individual West European nations by threatening to stop gas supplies could be seriously hampered by the structure of the West European gas delivery system. For instance, it would be

impossible to cut off gas supplies to West Germany without also cutting off France.

This is not to suggest that the Soviet Union's West European customers are unmindful of risks associated with increasing dependence on Soviet energy. West Germany has set ceilings on the proportion of its gas which can come from the USSR and seems to have paid careful attention to the nature and location of the consumers of Soviet gas, i.e. ensuring that vital, energy-intensive industries and residential consumers are not overly vulnerable; West Germany and France are working to increase underground gas storage capacities; and all of the countries examined by OTA are attempting to maximize potential alternative supplies.

An excellent hedge against the problems of a Soviet supply cut-off would consist of persuading the Norwegians to develop their gas more quickly and to make more of it available to West European nations. To the extent that American policy initiatives could help to accomplish such an outcome, this is an area in which the United States might make an important contribution.

Aside from this effort, R&D in the area of synthetic fuels and coal liquifaction and gasification, the continued expansion of stored gas reserves, and further integration of the European national gas grids, OTA believes that the greatest 'safety' lies in increasing West European cooperation and coordination -- perhaps through the IEA or EEC. The degree to which the Soviet Union's Western customers present a united front and are able to coordinate their national energy plans for conservation, domestic energy development, etc; to agree on emergency procedures (comparable to those already in place to deal with OPEC oil cut-offs); and to share gas and move supplies around the European grid will be extremely important. The prospects for such coordination are difficult to evaluate. Although there are signs of informal discussions over these matters, largely in the private sector, it does not appear either the EEC or the IEA (which includes the United States, but not France) have made significant progress in this area.

The CHAIRMAN. Dr. Kramish.

Dr. KRAMISH. Thank you, Mr. Chairman.

In the interest of saving time I shall submit my formal statement to the Committee and just make a few comments.

The CHAIRMAN. It will be included in the record in full.

STATEMENT OF ARNOLD KRAMISH, TECHNOLOGY CONSULTANT, PROJECT HIGH FRONTIER

Dr. KRAMISH. I agree with Senator Heinz that the barn door is open and that the horse is well on its way. At the most his rear end is in the barn, and I wouldn't want to cope with that. Consequently, my comments in my statement and what I say at the moment are related to limiting the damage, not in fully correcting the situation.

Senator Heinz was correct in saying that there are other factors involved. Among these is the trust factor and the reliability factor.

SOVIETS RELIABLE SUPPLIERS OF NUCLEAR FUEL

The West Germans have good reason to believe that the Soviets are more reliable suppliers than we, at least in the nuclear field. They have been more reliable suppliers of substantial amounts of nuclear fuel than the United States has been.

Another sad experience has been with the solvent refining coal project, which was an utter disaster and which made the Germans and the Japanese at least feel that they could no longer work with us in advanced energy R. & D. projects.

I could name other projects of that nature.

I would like to say that I began to cope with these problems of technology transfer immediately after World War II when, of course, we were concerned with the Soviet Union, and to some extent with our friends the British, in nuclear matters.

As the concern and fact of nuclear proliferation widened it became clear that global technology transfer was a very complex problem in either assisting those processes or trying to block them.

Where our policies failed we had the satisfaction, however, of finding that our Nation's technological momentum made up for any losses.

In 1967 I wrote "As far as the United States is concerned, it will always press for a posture of technological leadership, a posture reinforced by the need to maintain strategic superiority."

I regret to say that in recent years I have begun to feel that my confidence of 1967 is being eroded. But this is not just my personal perception. It is a perception that is growing in the minds of our allies.

It is unfortunate that our allies have failed to be convinced that there are very strong nontechnological but national security reasons to reject dependence on the Soviet Union for a substantial portion of their energy supplies.

As we grope now for one mechanism or another to impede the Urengoi deal, some have focused on recent months on the technology transfer implications of the deal. That is a legitimate focus, but we have focused too late, and I fear we are going to do a very sloppy job.

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I think the hints about the structure available at the moment for doing that job are very telling in this respect. What concerns me now is a personal perception, which I hope is false, that the technology barrier may be thrust forward in a noncredible manner to block at least part of the Urengoi deal, coupled with a growing perception on the part of our allies that R. & D. and technical innovations are in trouble in the United States. The net result could be very damaging to U.S. relationships.

That is the caution I have expressed in my formal statement.

[Complete statement of Mr. Kramish follows:]

(Revised)
Statement of Arnold Kramish
Committee on Banking, Housing and Urban Affairs
United States Senate
November 12, 1981

Was Technological Leverage Possible in the Soviet Gas Deal?

Particularly today as the Columbia returns to space for the first time, it is perhaps instructive to recall President Reagan's message to the crew of Columbia's first flight. He said, in part:

"Through you, today we all feel as giants once again . . . As you hustle from earth in a craft unlike any other constructed, you will do so in a feat of American technology and American will."

President Reagan was able to speak thusly because technology today demands long-term continuity. The President and the nation drew satisfaction from that continuity just as President Johnson did when Apollo 8 first orbited the moon in the last month of this administration and President Nixon did when astronauts first landed on the moon in the first year of his administration. We have lost our continuity in nuclear energy, a continuity which is as vital as continuity in space programs, from one administration to another. And while the present administration is supportive of nuclear energy, the policies thus far revealed hold little to capture the interest of those allies whose nuclear energy programs may be in various stages of difficulty right now, but have caught up with ours in technology.

What does this have to do with the Yamburg/Urengoi deal? Simply because if we start to cope with the deal in a narrow technological, possibly not valid, context, we may be losing sight of the broader, more serious issues, as many of our European friends appear to have done. The

Yamburg/Urengoi affair may come to symbolize a retreat from innovation as a national source of strength, substituting illusory protectionism as an ineffective weapon in combatting technological challenges from elsewhere.

We have witnessed, during the previous administration, an example of what happens when technology was presumed to hold the answer for a political problem, namely nuclear proliferation. Hundreds of millions of dollars were spent to seek proliferation. Hundreds of millions of dollars were spent to seek proliferation-proof nuclear energy systems. That effort was doomed to fail miserably from the start and, additionally, did disservice to the future of nuclear power in this country. I fear that if we seek a purely technological solution to the problem we are addressing today, we shall also fail. The present Yamburg/Urengoi issue is fundamentally first, the consequence of our allies becoming increasingly dependent on Soviet energy supplies and Soviet whims in assuring those supplies in times of tension, particularly. Second, acceptance of countertrade allows the Soviets to accumulate strong currency reserves to purchase more high technology items which may be completely unrelated to the Yamburg/Urengoi issue.

It is at this interface that the technology issue must be addressed. True, there are high technology facets to the gas deal. If it can be demonstrated that the compressor and control equipment, particularly, are based on current or future national security-sensitive technology, then certainly all efforts, unilaterally or through COCOM must be applied to prevent transfer of that technology. If there presently are specified U.S./allied technological items critically related to our nation's security involved in the Yamburg/Urengoi deal, let us try to stop the transfer. But if there are no such critical items, let us not invite them but pursue such political, allied security and economic avenues that still may exist.

The third bottom line in the Yamburg/Urengoi deal should be that our last ditch effort to stop it must not discredit evolving new technology transfer control policies and, more importantly, must not damage this nation's technological potential. The only certain way to keep ahead in political, military and economic terms, is to preserve and encourage this nation's technological momentum.

It is sad that while we are grasping for a technological handle to counter a deal which almost everyone agrees will be damaging to allied security, encouragement of research and development which might maintain our national security, as it has in the past, is not particularly evident. As a further irony, the technological stature of some allies who are eager to sign the deal is surpassing ours in several important respects. The ultimate result will be that for technological reasons the communication, in terms of politics and trade, between our allies and the Soviet Union will prosper to the detriment of allied foreign relations and national security.

Other steps which should be taken are review of the energy R & D programs of the International Energy Agency to see if they can be strengthened. NATO's Committee in Modern Challenges of Society is very weak. Can it be revived in a form which impacts more strongly and favorably on NATO's energy problems? Are there common technological dimensions in the individual relationships of NATO nations to individual OPEC nations which might be pursued in a bilateral or multilateral mode, i.e. in a more cohesive allied sense? The answers to such questions will not come in time to affect the Yamburg/Urengoi deal but should be useful for future situations.

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It is most unfortunate that the final stages of the Yamburg/Urengoi arrangements were brewing in the interval overlapping two U.S. administrations. That should not be an excuse for slackening efforts to find a better way for us and our allies, and it is important that we seek avenues right up to the point of consummation. The point may be very near, but we should not come to remember the Yamburg/Urengoi issue as the point in time when this nation sacrificed technological leadership for the chimera of technological control.

At Ottawa, President Reagan offered a broad energy package to our principal allies to tempt them from the Yamburg/Urengoi deal. This paper presumes to address itself only to the nuclear portion of that package, which included nuclear reprocessing cooperation. That, of course, is most tempting to West Germany, for by law nuclear power cannot proceed until adequate arrangements for nuclear waste storage are in hand. With reprocessing, the waste problem can be solved; without reprocessing the solution remains at the minimum problematical, but probably not feasible at all. The French and the British would welcome a reasoned U.S. approach to reprocessing, but that alone would not be sufficient as a substitute energy temptation, for they are way ahead of us in reprocessing. It is now national policy to encourage reprocessing without government support. But no one knows just how to do that.

As for new reactor energy systems, possibly only a vigorous U.S. program improving the high temperature reactor and developing gas-cooled fast breeder reactor systems would impress the British, French, Germans and the Japanese--for historical and technical reasons. But we, unfortunately, do not have those reactors on our nuclear menu.

Sad to say, we have nothing substantive to offer our allies in nuclear energy cooperation. One hoped that the same would be said of the other energy temptations put forward at Ottowa. If that hope was in vain, then we may have been seen to be presumptuous to be attempting to curb the Yamburg/Urengoi deal by claiming the sensitivity of certain technologies related to the sale of pipeline equipment. We should have done our homework much earlier in the game, for even if the technological premise is genuine, it will be difficult to be convincing at this late date. Earlier, a technological barrier to the deal, if substantive, would have been more convincing to our allies. But even then, it would have had to be cast in a matrix of U.S. technological leadership. And this is the lesson for future difficult situations which undoubtedly will confront this nation.

P. O. Box 2621
Reston, Virginia 22090
November 20, 1981

The Honorable Jake Garn
5205 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Senator Garn:

Thank you for the opportunity to address the Committee on November 12. My statement was prepared in the context that "the horse is out of the barn," as Senator Heinz expressed it. If a last ditch effort were to be made to stop the Urengoi deal through embargo of technology (and why not?), that move would have to be very carefully considered so that it does not assault our technological image. I have doubts that our "system" is prepared yet to make a damage-limiting assessment.

Enclosed is a discussion paper, "How to Draw the Line," and a related memorandum, prepared for an informal group last summer. It received some acceptance, but the assessment was that the idea came too late to affect the Urengoi deal. A separate memorandum on possible technological leverage was sent forward on August 26 and passed by State to another agency for action. I have no objection to the memoranda being included in the record with my revived statement, as enclosed.

The point brought out by other witnesses that Yamburg is a future production site is not trivial. When that reserve is developed, one can expect that there will be additional vigorous efforts to market the gas above. And later, when the vast reserves of Yamal (the perimeter west of Yamburg) begin to be exploited, there will be no way the Soviet Union could use all that gas on the basis of domestic requirements and even through substantially increased orders by present customers. Then there will emerge quite a different global energy dimension. I hope we are thinking of the implications (and how to cope with them), but I doubt that we are. Probably we shall be making policy frantically right down to the point of no return, just as we have been doing for the Urengoi deal.

Cordially yours,

Arnold Kramish
Technology Consultant

AK:vvm
Enclosures (3)

Arnold Kramish

19 August 1981

How To Draw The Line

The rebuff given President Reagan by Chancellor Schmidt at the Ottawa Summit may presage other rifts for the NATO alliance. It seems that the die may be cast for the proposed Yamburg gas pipeline, that it will be built through loans arranged by a consortium led by the Deutsche Bank. In his new novel "The Last Days of America," Paul Erdman has the Deutsche Bank in a similar role but with a different scenario. This time the story is real, and many recent writings about the pipeline fear perhaps not exactly what Erdman does, but how a large share of the energy needs of the NATO alliance would be hostage to Soviet whim. Already West Germany is the main customer for Soviet gas and oil (and a significant customer for Soviet enriched uranium for power reactors.) France last year overtook East Germany, Poland and Finland to become the second most important oil and gas customer for Moscow.

The Netherlands is presently the main supplier of gas to West Germany. If and when the Yamburg pipeline begins to deliver, the Soviets will take first place as a supplier to West Germany and render at least France, Italy, and Austria deeply dependent on Soviet supplies. Austria already is, with no more than half of her gas coming from the east. Nevertheless, West Germany is the key to the ten billion dollar financing of the Yamburg line and the accompanying infrastructure which will have an industrial significance for the Soviets, transcending Western Europe's dependency in Soviet energy sources. The latter will be bad enough, for the dependency will always remain as a means to disrupt the NATO alliance at any time in

the future.

So the U. S. concern over even more European dependence, represented by the Yamburg pipeline, is understandable. But if the pipeline is to be despite our protestations, perhaps our friends in Europe can be persuaded to negotiate with the Soviets on a another basis which entails less risk, at least while the pipeline is under construction.

The rich Urengoi gas field is to the northeast of the Ural Mountains, the gateway to Siberia. Further north, at the same latitudes as the Alaskan North Slope oil fields ar sited the Yamburg finds on the Taz Peninsula (not on the neighboring Yamal Peninsula, for which the pipeline is popularly named.) The Urengoi field feeds smaller gas lines to Uzhgorod on the Czechoslovak border, where another feeder line from Orenburg, in the southern Urals also intersects. Eastern Czechoslovakia is pinched by Hungary to the south and Poland to the north. The line from Uzhgorod goes through Czechoslovakia towards customers in Westen Europe. Strategic pipelines, pumping stations and termininals are protectd by Soviet security troops. Sadly, any measure of enhanced security over the pipeline traversing Czechoslovakia is probably little noticed in that captive country.

Sadly also, current thinking about the Yamburg gas pipeline seems to be captive of a simple geopolitical trap. It is just as important to free ourselves from this mindset as to try to answer the conundrum of whether Moscow would be a more reliable supplier than OPEC. Uzhgorod has been the presumed USSR terminal for the new Yamburg pipeline. If so, that would hardly affect the current Czechoslovak political situation, although greater transmission capacity might have to be provided in Czechoslovakia.

But if the Soviet terminal were moved northward to Brest or Grodno, as possibilities, and were the line continued westward through Poland, this path would have the most serious political implications for Poland and the West. The line and pumping stations would be guarded by the Soviet security forces all across Poland. Officials in Bonn assert that the only thing which might change their minds on the pipeline would be an invasion of Poland. Running the Yamburg pipeline through Poland is something short of an invasion, but perhaps not much shorter. It would cut Poland in two, easing the Soviet political control problem. It would take, according to possibly optimistic Soviet estimates, about four years to complete the new pipeline. Running the Yamburg line from east to west gives the Soviets the option at any time, during the next two years or so, of expanding their facilities at Uzhgorod or of building new terminal facilities and infrastructure, on the Polish border and then running a line through Poland. But even though the gas will flow from east to west, there is no reason the pipeline construction has to start in the same east to west direction. Is there a difference, an advantage if the construction were to proceed from west to east? Yes, for all parties.

If the Yamburg pipeline must proceed, perhaps our allies would be willing to explore with the Soviets the possibility of the pipeline being laid from west to east, i.e. from Uzhgorod to northwestern Siberia. The advantage to the West would be that this mode avoids at least one major political surprise. The loans should be made on a "pay as you go" basis, thus providing a period of grace of several years to test the political viability of the project. Deferring to later years the more expensive funding for the more difficult path on permafrost gives time to test Soviet intentions on the political issues as well

The Soviets will not buy a reverse-switch unless there is also something in it for them. As the pipeline would proceed northeasterly from the Ukraine, it could provide a conduit for surplus gas to industrially important areas, back-fed from the other lines which presently converge at Uzhgorod. The Soviets are still uncertain whether the line will be fed from the Urengoi terminal or from a less-developed infrastructure near Yamburg to the north; a west to east line gives them more time to make that decision. While doing so, the Soviets will improve their skills in operating the pipelaying, drilling and pumping equipment they are trying to buy from the West, (with apparent success, as exemplified by the recent approval of the Reagan Administration of an export permit to purchase 100 Caterpillar pipelaying machines) on less difficult terrain than the permafrost of northwest Siberia. And in the final analysis, they would have their pipeline, from one direction or another.

When that is accomplished, when the Soviets have created a new Siberian economic base and when our key allies are just as dependent on the USSR as on OPEC for their energy needs, this will signify a new dimension in east-west relationships. That is what is so disturbing to many, but at least we ought to try to assure that the changes occur in a manner which minimize political and economic risk and under conditions more suitable for testing mutual intent and confidence. But perhaps such is only a pipe-dream.

Arnold Kramish is a technology consultant and the author of several books, including "Atomic Energy in the Soviet Union" (Stanford University Press)

August 24, 1981

MEMORANDUM

To: Michael Marks for Undersecretary Buckley (State/T)

From: Arnold Kramish

Subject: A Possible New Approach to the Yamburg/Urengoi Gas Pipeline to Western Europe

Background

The FRG (and other European allies) seem intent on financing a new pipeline and associated infrastructures to bring gas from the Yamburg/Urengoi area of northwest Siberia, via a 56-inch pipeline to be financed almost entirely by a consortium led by the Deutsche Bank. That means a substantial increase of fabrication jobs for the FRG economy. When completed, the line will render the FRG more than 30% dependent (as compared to 17% now) on Soviet whims as a supplier. Other potential dependencies include France (from 7% to 30%) and Italy (from 23% to 30%). Such dependence could make Allies very vulnerable to Soviet pressures not directly related to energy supply.

The potential dangers could be magnified if the western USSR terminus were moved northward, say to Grodno or Brest on the Polish border. The present terminus for several smaller gas pipelines is at Uzhgorod, where Poland and Hungary pinch Czechoslovakia. The line then runs through Czechoslovakia, branching to customers in eastern and western Europe. Increasing the capacity of the existing distribution lines would not substantially enhance overall Soviet political control over Czechoslovakia. However, a pipeline running through the heart of Poland

would be an excuse and a tool for enhancing Soviet security forces in Poland. That is something to be avoided now and in the future. If the Soviets maintain the Polish option during the period of pipeline construction from east to west, that would add a substantial measure of uncertitude to western fears of political misuse of the pipeline.

Proposed Action:

That the U.S. propose to its Allies (especially to the FRG) that they negotiate the construction of the new pipeline from west to east on a pay-as-you-go basis, commencing at Uzhgorod terminus, expanding the latter's infrastructure to accommodate the increased flow and distribution. This to be done if and when the FRG firmly rejects the primary U.S. offer of increased support of alternate coal and nuclear initiatives.

Advantages to the U.S.:

If the gas line deal becomes inevitable, fixing the Uzhgorod terminus soon deprives the Soviets of the option of using the western terminus as another means of political control vis-a-vis Poland. Also, it delays the development of the Yamburg/Urengoi infrastructure thanks to western financing. The early development of that area is desired by the Soviets, and that is the most expensive part of the $10 billion venture. That portion should be delayed as much as may be possible to test Soviet behavior, not only related to the pipeline itself, but to possible adventurism globally. The west-east mode gives the West more political leverage and minimizes the costs of cancellation either by the Soviets or by our Allies.

August 26, 1981

MEMO

To: Mike Marks, Office of Undersecretary Buckley

From: Arnold Krarish

Subject: Some Technological Questions about the Projected Yamburg/Urengoi Line; a Possible Delaying Tactic

Background: Soviet development and production of large compressor units for aviation, space and particularly for domestic uses (such as compressor stations in gas pipelines) has always been difficult for them. Since military requirements have the greatest priority, some of their best pipeline compressors have tapped military technology. Even so, Western pipeline technology remains superior.

The existing Orenburg-Kuibyshev gas pipeline uses compressor units developed from the NK-12-ST Soviet aircraft engine originally used to power the TU-114 and the Bear bomber. Marine gas turbines power some other compressor stations. But reverse-engineering from military to civilian uses has not been very successful. This is why the U.S.S.R.'s turning to purchases of Western compressor units to move the gas in the Yamburg/Urengoi line. It should be noted that the large-diameter gas piping is in itself an industrial achievement. Engineered for gas pressures, the large-diameter pipe can also accept oil and other liquids. (It is relevant that the pipe for the Alaska oil line was not available in the U.S., being ordered from Japan.)

Questions:

1. Do the compressors to be purchased by the Soviets in Western Europe derive from sensitive or proprietary military/space technologies developed within NATO countries? This question applies not only to concept and design, but also to metallurgical techniques and flow-control

equipment. Will the latter incorporate advanced computer technology?

2. Will it be possible for the Soviets to reverse-engineer from Western-supplied compressor units (as they have reverse-engineered from military to civilian units) to benefit their military and space programs?

3. Will they be able to reverse-engineer to benefit critical (non-gas) components of their civil economy?

4. Are the Soviets likely to over-order large-diameter pipe and compressor units to benefit their military and other sectors of their economy?

If the answer to any of the questions is "yes," then the pipeline deal must be examined within the context of possible harm done through technology transfer. COCOM and other appropriate controls and pressures must be applied among NATO allies. At the minimum, such an examination might at least delay the Yamburg/Urengoi deal.

The CHAIRMAN. Thank you, doctor.
Mr. Robinson.

STATEMENT OF ROGER W. ROBINSON, JR., SECOND VICE PRESIDENT, EASTERN EUROPE DIVISION, CHASE MANHATTAN BANK

Mr. ROBINSON. Mr. Chairman, it is a privilege to appear before the committee to discuss some of the economic, political and security dimensions of the proposed Siberian natural gas pipeline project. Before doing so, I would like to point out that I am appearing before the committee on my own behalf and that the views expressed in my testimony and in any subsequent discussions are my own and do not necessarily reflect the views of the Chase Manhattan Corp. or Bank.

Since 1974 my associate Miriam Karr and I have been closely following developments in East-West trade, particularly those linked to resource development projects in the Soviet Union.

The Urengoi-Yamburg project represents a watershed event in this series of major resource compensation transactions and because of its massive proportion has given rise to legitimate concern regarding the economic and political consequences of undue dependency on Soviet gas.

This concern prompted us earlier in the year to analyze the compelling commercial and economic underpinnings of the project. Moreover, we felt it important to contribute an American view to the debate over the pipeline and on April 19 published an article in the New York Times entitled "Europe's Big Gamble on Soviet Gas."

As events unfolded, we thought it appropriate to expand our analysis to include a Western security and policy perspective. We completed our expanded analysis of the project prior to the July

Ottawa summit and it was subsequently printed in the Congressional Record on October 7 at the time you, Mr. Chairman, introduced Senate Concurrent Resolution 41.

The article, which presently appears in the autumn edition of the Washington Quarterly under the heading "Soviet Gas: Risk or Reward?" is attached to my prepared remarks (see p. 208).

Our principal objective has been to describe the major technical components of the project and to bring to light some of the important unresolved issues.

At the 26th Communist Party Congress in February 1981 President Leonid Brezhnev reiterated that the opening up of West Siberian gas resources and their transmission to the European border of the U.S.S.R. is the centerpiece of Moscow's energy program extending up to 1990. In President Brezhnev's words, "The accelerated development and exploitation of Siberian natural gas resources is a matter of highest economic and political priority."

SECURITY AND POLICY QUESTIONS OF POLITICAL PRIORITY

It is Mr. Brezhnev's political priority which concerns us, and today I would like to outline briefly some of the broader security and policy questions that we identified in the article.

First, the United States and Western Europe have yet to achieve a consensus view on the broader policy question, namely, under what conditions and at what level should the West actively continue to participate in the extraction, processing and transmission of Soviet energy resources.

Second, there is no clearly drawn distinction between routine commercial transactions and strategic trade arrangements laced with political and security implications. This in turn poses the related question: Do the substantial commercial rewards associated with projects like Urengoi-Yamburg, which alone will generate about $15 billion in orders for Western suppliers, obscure the inherent risks?

Third, do deliveries from Urengoi-Yamburg, which, for example, will raise the Soviet share of total gas supplies to the principal participant, West Germany, to 38 percent by 1990, cross the threshold of a prudent level of dependency on Soviet gas?

Fourth, there is as yet no adequate institutionalized dialogue between the United States and its West European allies regarding development of a safety net of contingency plans and alternatives to Soviet gas. Examples might include the accelerated development of North Sea gas resources, strategic stockpiling, an energy sharing plan, and the joint development of U.S. coal reserves, all of which would serve to reduce the vulnerabilities associated with any undue dependencies.

Fifth, the United States and its Western allies need to define uniform parameters of Soviet behavior that would trigger a decision by the West to delay or terminate such projects.

Sixth, the Western allies need to engage in a continuous and coordinated assessment of their political leverage as might be exercised through the control of the flow of technology, equipment, and credits as well as Soviet access to major hard currency markets.

PIPELINE COMMITMENTS IN THE ADVANCED STAGE

At this juncture it is unrealistic to expect that Urengoi-Yamburg can be derailed because of the advanced stage of commitments to the project on both sides, which will be formalized during President Brezhnev's visit to Bonn in less than 2 weeks.

In recognition of this fact, in my view we should now redirect our efforts to addressing the question: what can be realistically salvaged from this unsettling debate over the pipline? Should the Western allies continue the past practice of ad hoc, fragmented decisionmaking concerning strategic trade issues, or do we come away from this experience firmly resolved to forge a meaningful unified policy that would effectively balance future commercial rewards against the security risks?

Establishing a specific institutionalized framework to treat these strategic trade issues, such as an upgraded and restructured NATO Economic Secretariat, would represent an important step in achieving this unified policy.

Perhaps as important would be the parallel advantages to the Western business community stemming from the enhanced stability of East-West commercial relations. This is particularly appplicable to U.S. companies which often in the past have been hampered by erratic go/no-go government decisionmaking. There are clear indications that this administration is fully appreciative of these past shortcomings and the need to redress them.

Finally, let us hope that we as a country have sufficient vision to support the assessment that these strategic economic undertakings do have to be perceived within the context of Western security. Failure to take advantage of the window of opportunity opened by the Urengoi-Yamburg debate risks compromising NATO's ability to formulate coordinated policy responses to major Soviet geopolitical initiatives.

[The complete statement follows:]

STATEMENT OF ROGER W. ROBINSON, JR., EASTERN EUROPE BANKING DIVISION, THE CHASE MANHATTAN BANK, N.A.

SIBERIAN GAS PIPELINE PROJECT

Mr. Chairman and Members of the Committee: It is a privilege to appear before you to discuss some of the economic, political and security dimensions of the proposed Siberian natural gas pipeline project. Before doing so, I would like to point out that I am appearing before the committee on my own behalf, and that the views expressed in my testimony and in any subsequent discussions are my own and do not necessarily reflect the views of the Chase Manhattan Corporation or Bank. Furthermore, I would like to limit my participation in these hearings to discussing those issues directly related to the Urengoi-Yamburg project.

Since 1974, my associate Miriam Karr and I have been closely following developments in East-West trade, particularly those linked to resource development projects in the Soviet Union. The Urengoi-Yamburg project represents a watershed event in this series of major resource compensation transactions and, because of its massive proportion, has given rise to legitimate concern regarding the economic and political consequences of undue dependency on Soviet gas.

This concern prompted us earlier in the year to analyze the compelling commercial and economic underpinnings of the project. Moreover, we felt it important to contribute an American view to the debate over the pipeline and on April 19, published an article in the New York Times entitled "Europe's Big Gamble on Soviet Gas". As events unfolded, we though it appropriate to expand our analysis to include a Western security and policy perspective We completed our expanded analysis of the project prior to the July Ottawa summit and it was subsequently

printed in the Congressional Record on October 7, at the time Senator Garn introduced Senate Concurrent Resolution 41. The article, which presently appears in the Autumn edition of the Washington Quarterly under the heading "Soviet Gas: Risk or Reward?" is attached to my prepared remarks.

Our principal objective has been to describe the major technical components of the project and to bring to light some of the important unresolved issues. At the 26th Communist Party Congress in February 1981, President Leonid Brezhnev reiterated that the opening up of West Siberian gas resources and their transmission to the European border of the USSR is the centerpiece of Moscow's energy program extending up to 1990. In President Brezhnev's words "The accelerated development and exploitation of Siberian natural gas resources is a matter of highest economic and political priority". It is Mr. Brezhnev's "political priority" which concerns us and today I would like to outline briefly some of the broader security and policy questions that we identified in the article:

First, the United States and Western Europe have yet to achieve a consensus view on the broader policy question, namely under what conditions and at what level should the West actively continue to participate in the extraction, processing, and transmission of Soviet energy resources.

Second, there is no clearly drawn distinction between routine commercial transactions and strategic trade arrangements laced with political and security implications. This in turn, poses the related question—Do the substantial commercial rewards associated with projects like Urengoi-Yamburg, which alone will generate about $15 billion in orders for Western suppliers, obscure the inherent risks?

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Fifth, the U.S. and its Western allies need to define uniform parameters of Soviet behaviour that would trigger a decision by the West to delay or terminate such projects.

Sixth, the Western allies need to engage in a continuous and coordinated assessment of their political leverage as might be exercised through the control of the flow of technology, equipment, and credits as well as Soviet access to major hard currency markets.

At this juncture it is unrealistic to expect that Urengoi-Yamburg can be derailed because of the advanced stage of commitments to the project on both sides, which will be formalized during President Brezhnev's visit to Bonn in less than two weeks. In recognition of this fact, in my view we should now redirect our efforts to addressing the question—what can be realistically salvaged from this unsettling debate over the pipeline? Should the Western allies continue the past practice of ad hoc, fragmented decision making concerning strategic trade issues, or do we come away from this experience firmly resolved to forge a meaningful unified policy that would effectively balance future commercial rewards against the security risks. Establishing a specific institutionalized framework to treat these strategic trade issues, such as an upgraded and restructured NATO Economic Secretariat, would represent an important step in achieving this unified policy.

Perhaps as important would be the parallel advantages to the Western business community stemming from the enhanced stability of East-West commercial relations. This is particularly applicable to U.S. companies which often in the past have been hampered by erratic go/no-go government decision making. There are clear indications that this administration is fully appreciative of these past shortcomings and the need to redress them.

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REPORTS

Special Report

Soviet Gas: Risk or Reward?

MIRIAM KARR and ROGER W. ROBINSON, JR.

In lifting the U.S. grain embargo imposed by President Carter in January 1980 in response to Soviet intervention in Afghanistan, the administration added a new dimension to the already complicated dialogue between the United States and Western Europe concerning relations with the Soviet Union. At a time when the United States is urging Western Europe to adopt a more vigilant and cautious posture towards the Soviets on a range of policy issues—from the deployment of new Euro-strategic weapons to entering into long-term resource commitments—the administration's decision to terminate the embargo earlier this year may have temporarily weakened U.S. leverage in effecting a consensus on these and other critical issues.

Nevertheless, the opportunity for the United States to use the grain issue to forge a more consistent and unified Western approach towards the U.S.S.R. has not been lost. Because of divergent views within the administration concerning the grain trade issue, the United States decided to defer negotiation of a new long-range grain agreement, probably calling for a higher ceiling on future purchases of U.S. grain, and agreed instead to extend the existing arrangement until the fall of 1982. Although this move may have deprived the administration of the opportunity to negotiate within the context of an anticipated third consecutive poor grain harvest in the U.S.S.R., the deferment may eventually result in greater Soviet willingess to reach accommodations on a broader range of East-West issues prior to a U.S. commitment to improved cooperation on this and other strategic trade questions. Given the priority attached to the U.S.S.R.'s livestock program and continuing shortfalls in domestic grain production, the forthcoming grain negotiations should provide an opportunity for a significant give-and-take.

The importance of U.S. adherence to a consistent policy towards the U.S.S.R. re-

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garding grain is underscored by a parallel development dominating West European-Soviet commercial relations, namely the joint construction of a new Siberian natural gas transmission system. The projected new pipeline, which Soviet officials describe as the "largest project in recorded history," and U.S. grain exports are the two pivotal trade issues in East-West economic relations. The Soviets view these issues as important underpinnings of their overall foreign policy strategy towards the West. The Western allies should therefore coordinate these central economic issues at the highest level rather than continue the past practice of ad hoc, discontinuous, and at times low level treatment.

Since the controversial U.S. grain sale to the U.S.S.R. in 1973, the grain trade question has sporadically been elevated to the status of a major policy issue in overall U.S.-Soviet political relations, triggering exhaustive public debate. However, it is interesting to note that the large gas-for-pipe compensation arrangements between Europe and the U.S.S.R., dating back to the late 1960s, have never been openly discussed in political terms in this country. The new Siberian gas pipeline, however, represents a watershed event in this series of major resource compensation transactions and, due to its massive proportion, remains a hotly contested public issue in Europe. The major political implication raised is whether the pipeline venture would lead to an imprudent degree of dependency on Soviet gas resources. Wholehearted U.S. support for a more unified Western stance on economic as well as political issues dictates that the dependency question be viewed with equal or even greater concern on this side of the Atlantic.

The administration's attention to the project was reflected in its decision to place this issue high on the agenda of the Western economic summit in Ottawa in July. Prior to the summit, congressional resistance to the project began to take on momentum after some 50 members of Congress conveyed their serious concern in an open letter to President Reagan. This was followed by the introduction of a resolution in the House of Representatives opposing U.S. participation in the project and urging the president to establish allied cooperation in developing Western energy alternatives. A companion resolution expressing similar views was scheduled to be introduced in the Senate in September by Senator Jake Garn (R-Utah).

Originally, the proposed 3,600-mile gas transmission system was to extend from Yamburg, a new gas field discovered in 1969 on the Taz Peninsula in the Yamal Arctic region of western Siberia, to the western border of the Soviet Union. Soviet industry experts, however, recently decided not to proceed with full development of the Yamburg field in the current five-year plan, but rather accelerate the expansion of the huge Urengoi field that has been producing gas since 1978 and is located 150 miles to the south of Yamburg. Urengoi gas production is slated to increase from 50 billion cubic meters in 1980 to 240 billion cubic meters in 1985. Moreover, Soviet gas specialists claim that this shift in gas exploitation strategy would result in a potential cost saving of an equivalent ruble amount of $1.3 billion. The need for reappraisal of optimal cost effectiveness of gas exploitation becomes more evident in light of a planned 100% increase in Soviet investment expenditures in the gas industry during the period 1981 through 1985 to an equivalent of $26 billion.

Nevertheless, as the Soviets bring the Yamburg field on stream during the later stages of the delivery schedule, Yamburg will become a major source of gas for the project. Therefore, it remains practical to refer to the proposed pipeline as the Urengoi-Yamburg project.

At the 26th Communist party Congress in February 1981, President Leonid Brezhnev reiterated that the opening up of western Siberian gas resources and their transmission to

the European part of the U.S.S.R. is the centerpiece of Moscow's energy program extending up to 1990. Considering the hard currency earning potential from western Siberian gas sales, the economic rationale of Moscow's stated energy policy is indeed compelling. The anticipated $10 billion to $15 billion annual earnings from Urengoi-Yamburg and other gas revenues from new pipelines expected to be operational in the mid-1980s assume even greater significance at a time when income from oil exports is leveling off. The new Soviet five-year plan reflects this shift in emphasis from oil to gas by projecting a dramatic rise in gas production from 435 billion cubic meters in 1980 to 600-640 billion cubic meters in 1985. During this period, even according to Soviet figures, the U.S.S.R.'s oil output is expected to peak at 620-645 million tons, or only marginally more than the 603 million tons that were produced in 1980.

The sluggish expansion of Soviet oil output is primarily due to bottlenecks in exploitation of new oil fields located in harsh permafrost regions. To support the prodigious investment involved in Soviet resource development, the Kremlin leadership is actively promoting large-scale compensation deals, such as Urengoi-Yamburg, which not only lock in substantial earnings over time but also provide the benefits of much needed infusions of Western equipment and technology.

The new pipeline is intended to supply 40 billion to 70 billion cubic meters of natural gas a year to 10 European countries—West Germany, France, Italy, Austria, Finland, Belgium, the Netherlands, Sweden, Switzerland, and Greece. A consortium of European companies, led by West German concerns, are in advanced stages of negotiation with the Soviet Union for the supply of large diameter steel pipe, gas compressor stations, pipelayers, and other equipment valued at about $15 billion. Included in this figure are Japanese contract negotiations for similar equipment worth close to $3 billion. Interestingly, Japan's participation as a supplier to Urengoi-Yamburg represents a significant departure from other involvements in Soviet resource development projects which are tied to some form of payment in end product.

Some large U.S. manufacturers have also been invited to bid on equipment contracts, however, the potential level of American involvement in the project is yet unclear. Although the administration has approved a recent sale of U.S. pipeline equipment to the U.S.S.R., the terms of the export license clearly state that the equipment involved is "not to be used in construction of the proposed Siberian-West European gas pipeline project." The official Department of Commerce announcement also reiterates that "this licensing action in no way diminishes the adminstration's intent to address the long-term security aspects of Western involvement in and dependence on Soviet gas supplies."

The principal players in the negotiations are the major European utilities—Gaz de France, Ente Nazionale Idrocarburi (ENI) of Italy, Mineraloelverwaltung of Austria—led by Ruhrgas of the Federal Republic of Germany. These state-owned or partially state-owned companies have been arranging large gas supply contracts with the U.S.S.R. since the late 1960s. Similar to Urengoi-Yamburg, these arrangements were based on a compensation framework whereby Western equipment was financed through deliveries of gas from the U.S.S.R. Soviet deliveries of gas under these agreements reached 23.5 billion cubic meters in 1980. Urengoi-Yamburg is designed to boost gas deliveries to the above countries by about 30 billion cubic meters a year. In addition, Belgium, the Netherlands, Switzerland, and Sweden would be receiving deliveries of Soviet gas for the first time, so that by 1990 it is estimated that the U.S.S.R. would supply 35% of Western Europe's gas requirements.

Western experts calculate that for each dollar spent by the U.S.S.R. on imported

technology and equipment, an equivalent ruble expenditure of $2.00 is required to cover local infrastructure costs, thereby catapulting the total price tag for Urengoi-Yamburg to about $45 billion. Remarkably, Soviet officials claim that earnings from Urengoi-Yamburg gas deliveries will enable them to amortize the $15 billion Western equipment cost in the short span of two to three years—similar to the accelerated repayment of over $2 billion in Western loans for the Orenburg gas pipeline.

Needless to say, the packaging of each country's equipment procurement for a project of this size requires elaborate financing arrangements. Thus far the financial side of the negotiations has been the proverbial "fly in the ointment." Financing for Urengoi-Yamburg is being structured bilaterally with each participating country's official export credit program supporting its share of equipment sales.

A consortium of 14 West German banks, led by Deutsche Bank, is orchestrating the major share of the financing. The original terms of the DM 10 billion "in principle" agreement calling for a 10-year loan at a 7.75% nominal interest rate became impracticable because of shifts in Bundesbank policy earlier in the year. The ensuing rise in West German domestic interest rates prompted both the banks and Ruhrgas to insist that the wider interest differential be offset by either lower Soviet gas prices or higher West German equipment costs. This complicated loan pricing reflects traditional Soviet insistence on receiving fixed-rate loans at what appear to be lower-than-market rates. These nominal rates are, however, inevitably augmented by more flexible provisions in the commercial contracts.

During the latest round of negotiations with the Soviet Foreign Trade Bank in July a new credit formula was adopted, under which the proposed DM 10 billion credit was trimmed by approximately half the amount. This new financing formula resulted from a decision to split the overall equipment package into two components: gas turbine compressor stations and related equipment, and steel pipe. Although no credit terms have yet been announced, West German commercial bank financing will now be tied solely to the compressors and related equipment. It can be assumed that financing of the steel pipe component will be arranged in the form of supplier credits with all the attendant government guarantees.

A Dutch bank consortium has already concluded a loan agreement with the U.S.S.R. for an eight-year 3 billion guilder (about $1 billion) credit at a fixed rate of 7.8%. The Japanese Eximbank has offered to provide a 10-year $3 billion credit at a fixed rate of 8.5%, but the Soviets still insist on a 7% interest rate. However, a compromise agreement is expected to be reached soon. Belgium is also reportedly near agreement on a $1 billion loan to support the bid of a nine-company supplier consortium.

A group of French banks, led by Credit Lyonnais, initially offered to provide up to FF 15 billion (about $3 billion) also at 7.75% a year. The original French package also called for a FF 1.5 billion untied financial credit. Due to conflicting reports, it is difficult to determine whether the French are delaying in the hope of benefiting from a higher negotiated West German rate, or are genuinely considering scaling down their share of Urengoi-Yamburg gas deliveries.

The economic and commercial rewards for West European participation in resource compensation projects in partnership with the Soviet Union are at least as compelling as those outlined for the U.S.S.R. For example, Urengoi-Yamburg has been under discussion since 1978, when the U.S.S.R. and the Federal Republic of Germany signed a 25-year economic cooperation agreement. Realization of Urengoi-Yamburg would significantly promote the meaningful trade relationship envisioned in this agreement.

Although West German-Soviet trade is still modest compared to West Germany's global trade volume, the U.S.S.R. remains an increasingly attractive export market, especially given the Federal Republic's need to offset worsening trade deficits with the Organization of Petroleum Exporting Countries (OPEC). In 1980, West Germany's oil import bill came to more than $20 billion, contributing to a current account deficit of $14 billion—nearly three times the size of the Federal Republic's first postwar deficit in 1979. Moreover, West Germany's overall economic outlook points to a drop of at least 1% in gross national product for 1981, and a projected sharp rise in unemployment from 890,000 in 1980 to 1.5 million in the current year, with the inherent political repercussions.

As West German industry has traditionally represented a major influence on national foreign policy, it can be assumed that Bonn is under intense pressure to seek new or broader political ties with countries that are able to absorb the excess capacity of West German heavy industry. In terms of a break-even analysis of industrial production and profitability, it is clear what the huge equipment orders associated with Urengoi-Yamburg would represent to major industrial suppliers and, conversely, what the loss of such an opportunity would mean in terms of foregone profitability and employment. For example, the 4-5 million metric tons of steel pipe required for the project would entail annual deliveries of 1 million to 1.5 million metric tons of pipe by West German and Japanese suppliers. To put this figure into perspective the four major Japanese steelmakers have an average annual aggregate production of 2.65 million metric tons of wide-diameter pipe, and the leading West German manufacturer of this kind of pipe has an annual estimated production capacity of about 1 million metric tons.

The accelerated development of Soviet gas resources has established the U.S.S.R. as the largest market for wide-diameter steel pipe in the world. Even while no formal commercial contracts for Urengoi-Yamburg have been announced, a major West German pipe producer earlier this year signed a contract for delivery of 550,000 tons of steel pipe to the Soviet Union. This transaction was described as an ordinary export not associated with any specific project. Japan soon followed suit by extending a $400 million Eximbank credit to the Soviet Union to finance Japanese deliveries of 750,000 tons of steel pipe between July 1981 and March 1982.

The rewards associated with the Urengoi-Yamburg project for the Europeans are not solely expressed in terms of providing a vital outlet for capital equipment exports, but also in advancing the role of Soviet natural gas in Europe's emerging long-term energy strategy. In general, this strategy aims at a more diversified energy mix with particular emphasis on natural gas. For example, West Germany's energy dilemma is particularly troublesome because of strong domestic resistance to further development of the nuclear energy option, as well as shared European concern over excessive dependency on OPEC.

To illustrate Europe's new emphasis on gas, over the period 1980-1990, gas consumption in Italy is estimated to increase from 25 billion cubic meters to about 45 billion cubic meters; in the Federal Republic of Germany from 60 billion cubic meters to about 80 billion cubic meters; and in France from less than 20 billion cubic meters to a projected 45-50 billion cubic meters.

In order to secure these levels of future gas requirements each country is reassessing its current sources of supply and actively seeking access to new sources. Italy, whose domestic gas production will average roughly one third of overall gas requirements in the 1980s, has secured a new long-term source of supply in Algeria which is designed to contribute an equivalent share. The Soviet Union is in-

tended to supply the remaining third, with additional marginal amounts supplied by Libya.

The current gas supply equation in West Germany breaks down as follows: the Netherlands 37%, domestic production 30%, the U.S.S.R. 18%, and Norway 15%. Although the outcome is uncertain, the Netherlands is reportedly resisting extension of its long-term supply agreement due to expire in 1990. Should an agreement be reached concerning post-1990 deliveries, the volume of gas supplies from the Netherlands would probably be at reduced levels. This coincides with an anticipated sharp decline in domestic production by the end of the decade. Urengoi-Yamburg deliveries in projected annual amounts of 12-15 billion cubic meters would significantly offset these shortfalls. A "green light" for Urengoi-Yamburg would mean that the U.S.S.R. would replace the Netherlands as West Germany's major gas supplier by 1990.

The recent decision by the Norwegian government to accelerate exploitation of North Sea oil and gas resources was an unexpected boon in the search for new non-Soviet gas supply sources. Of the overall Norwegian $5 billion investment allocation for a series of oil and gas projects, the largest and most important is the construction of a 527 mile gas transmission system, at a cost of about $2 billion, that will transport gas from the Statfjord and Heimdal gas fields to several countries in Europe.

The new gas pipeline system will have a maximum capacity of 15 billion cubic meters, and beginning in 1986 will feed 7 billion cubic meters of gas annually through the existing Norpipe gas system into continental Europe. West Germany will receive 2 billion cubic meters annually. The accepted price for the new Norwegian gas distributed from Emden (West Germany) is $5.50 per million BTU. Other recipient countries will include France, Belgium, and the Netherlands.

Initially, this incremental 7 billion cubic meters of gas will not significantly change the complexion of the European gas supply situation; however, the planned expansion of the Norwegian gas exports up to 15 billion cubic meters will play a more important role in the next decade. For West Germany, additional Norwegian supplies will help offset the anticipated gas supply shortfalls from the Netherlands and from domestic production. Nevertheless, the Soviet share of total West German gas requirements would still remain at a projected 38% in the 1990s.

Bonn officials have repeatedly argued that concern over future West German dependency on Soviet energy supplies is exaggerated. This claim is generally based on the assumption that the share of natural gas in West Germany's overall energy mix will remain in the range of 18%, while projected Soviet inputs will account for a modest 5% of the country's total primary energy requirements. The basis for this argument is that as Soviet oil supplies to West Germany diminish they will be replaced by increased gas deliveries leaving the level of overall Soviet energy inputs unchanged.

On the surface, this calculation may indeed appear reassuring, but upon closer scrutiny it is difficult to dismiss the significance of Soviet gas inputs to certain industrial regions of the country. For example, Bavaria at present depends on the U.S.S.R. for 80% to 90% of its total gas consumption. Major Bavarian industrial consumers linked to Soviet gas are the chemical, petrochemical, and automotive industries. The Saar and Rhineland regions rely on Soviet sources for about 50% of gas consumption, while for Baden-Wuerttemberg and Hessen the share is somewhat less than 50%.

In the event of any interruption of Soviet gas deliveries, the vulnerability of these various regions will depend on the flexibility of West Germany's overall gas distribution system in accommodating the necessary reallocations. However, industry experts have highlighted the difficulty of shifting to alternate energy sources, which would be espe-

cially troublesome and costly for industrial sectors such as the petrochemical industry.

Proponents of Urengoi-Yamburg also contend that the U.S.S.R. is a more reliable energy supplier than some Middle Eastern energy exporters. It is true that the Soviets have established a track record for meticulous observance of the terms of commercial undertakings. Nevertheless, disruptions in Soviet gas deliveries to Europe have occurred, most recently this year. The Soviets advised gas distributors in the Federal Republic of Germany and in Austria that first quarter 1981 deliveries were to be cut by one third. In the case of Austria, industrial users were warned to expect cutbacks of up to 50% in deliveries beginning in April. Austrian energy experts explained that the disruption in Soviet deliveries was probably due to seasonal difficulties. At the same time, they advanced the theory that sharply reduced deliveries of Iranian and Afghani gas to the Soviet Union may have in turn led to the Soviet gas cutbacks to Western Europe.

A less apparent dimension to East-West resource projects, such as Urengoi-Yamburg, is Moscow's long-term strategy of transforming economic dependencies into tools of international diplomacy. In the words of President Leonid I. Brezhnev: "The accelerated development and exploitation of Siberian natural gas resources is a matter of highest economic *and political* priority" (emphasis ours).

Europe's eagerness to reap the benefits of economic and commercial relations with the U.S.S.R. has obscured the risks inherent in striking individual accommodations with Moscow. This narrow approach leading to largely bilateral dealings with the Soviet Union is in no small measure related to the absence of a consistent and clearly enunciated U.S. foreign policy in the past. The physical proximity of the U.S.S.R. and all of its implications justifiably heightens anxiety among Europeans concerning their own security and well-being. A strong and determined U.S. posture would go a long way toward allaying these anxieties and at the same time instilling sufficient confidence for unified action.

The Soviets have predictably used this fragmented European approach not only to extract best possible commercial terms, but also to weaken the political will and resolve of the Western allies. Discernable inroads made by Moscow in this area are reflected in current European attitudes toward important policy issues, such as deployment of the Pershing II and cruise missiles on the Continent, and arms limitation talks.

If reducing European dependency on Middle East oil by moving toward greater reliance on Soviet energy sources represents a real problem, then at minimum it is appropriate to construct a safety net of viable short and long-term alternatives. In the short-term category, Western allies should continue to press for accelerated development of North Sea gas resources. The recent breakthrough in Algerian-Belgian negotiations for a liquified natural gas supply agreement may point the way to similar accommodations with other European gas importing countries. Strategic stockpiling and the establishment of a contingency energy-sharing scheme with the United States and other European energy producers should also be considered as alternatives that could be implemented in the short term.

Perhaps the most secure long-term energy supply alternative lies in the vast underutilized U.S. coal reserves. However, a prerequisite for proper utilization of coal is the accelerated development of the U.S. coal export infrastructure—expansion and improvement of port handling facilities and alleviating transportation bottlenecks. Active participation of major European and Japanese energy importers in the development of U.S. coal export facilities would hasten the process of developing this stable long-term energy flow. The incentive for the United States lies in the favorable impact such ar-

rangements would have on the U.S. balance of payments and domestic employment. These and other alternatives should be developed and implemented on a parallel basis to ensure a meaningful offset to Europe's energy shortfalls, whether or not the Urengoi-Yamburg project goes forward.

How can the Western allies meaningfully respond to the political vulnerabilities inherent in such long-term East-West economic and commercial undertakings?

First, a clear distinction must be made between ordinary commercial relationships and strategic trade arrangements laced with political and security implications. Traditionally there has been substantial confusion in making such distinctions, particularly in the area of high technology transfer and grain sales. Once a decision is made to view an economic or commercial issue as either a lever in furthering foreign policy objectives or a potential political vulnerability, it is imperative to send consistent signals to both allies and adversaries. To do so requires an advance willingness and preparedness to bear the substantial opportunity costs often attendant to such a decision.

As pointed out earlier, the United States appears still undecided as to which category—domestic or foreign policy—the grain issue belongs, with the most recent tendency to view it as a domestic economic issue. Similarly the importation of Soviet energy into Europe was consistently viewed as a domestic issue prior to the Urengoi-Yamburg debate. The U.S.S.R. clearly wishes to reinforce these tendencies by pursuing such negotiating tactics as proposing an "embargo-proof" provision in the next long-term grain agreement with the United States. It is conceivable that a similar proposal could be put forward concerning the construction phase of Urengoi-Yamburg that would be designed to safeguard against any possible Western interruption for political reasons.

Regrettably, these undertakings cannot be considered ordinary commercial relationships. A strong argument can be made in favor of the United States keeping its options open concerning grain sales in the interest of tempering Soviet geopolitical behavior. The Europeans, for their part, increasingly have to face the political realities linked to greater dependency on Soviet energy and the U.S.S.R. as an export market for industrial goods.

The flaws of past ad hoc bilateral approaches and the infrequency of summit consultations to address these critical economic and security issues highlight the need for establishing a viable institutional framework through which to handle these issues comprehensively and consistently. Institutions do in fact exist that could be helpful for this purpose.

One possibility is the Directorates for Trade and Commerce and Science and Technology of the Organization for Economic Cooperation and Development (OECD). However, the broad membership of OECD would make it difficult to achieve a solid consensus on such sensitive issues. Another alternative would be CoCom (the Coordinating Committee comprising NATO members and Japan), but the technical nature of this body is not particularly suited to this kind of policy-making.

Perhaps the most appropriate framework would be the underutilized Economic Secretariat within NATO. If granted the same status as the organization's military and political secretariats, the principal mandate of this restructured entity would be to candidly review and assess the risks inherent in projects such as Urengoi-Yamburg. Irrespective of the framework selected, the functions that such an organization should perform would include:

- Achieving a consensus view on the broader question, namely under what conditions and at what level should the West actively continue to participate in the extraction, processing, and

transmission of Soviet energy resources.

- Assessing and gauging the disadvantageous economic and political consequences of a specific project for each of the participating countries.
- Evaluating and developing various contingency plans and alternatives that would serve to reduce the vulnerabilities associated with any undue dependencies that could result from a project, i.e. the safety net approach.
- Establishing and defining parameters of Soviet behavior that could trigger a decision by the West to delay or terminate the project.
- Conducting an ongoing assessment of the extent of the West's political leverage through its control of the flow of technology, equipment, and credits as well as Soviet access to major hard currency markets.
- Arriving at a meaningful consensus, based on the aforementioned considerations, as to whether or not the inherent risks involved can be sufficiently mitigated to permit the project going forward.

Beyond the benefits of developing a specific institutionalized framework would be the parallel advantages to Western suppliers stemming from the enhanced stability of East-West commercial relations. This is particularly applicable to U.S. companies which in the past have often been hampered by erratic go-no go government decisionmaking.

The Urengoi-Yamburg debate currently revolves around three basic points of view. Most proponents of the project believe that Urengoi-Yamburg should be treated as a routine commercial undertaking on the assumption that East-West dependencies are evenly balanced. This view tends to gloss over the character of the U.S.S.R.'s command economy that is better equipped to implement major shifts in the allocation of resources when deemed politically necessary. The bulk of the resulting hardships have traditionally been absorbed by Soviet consumers who have a far higher tolerance threshold than their Western counterparts.

A concerned group in the administration and in Congress express the view that the project should be interdicted or at least scaled down because of the political and security considerations. In fact, it is now likely that the Europeans will propose a reduction in gas deliveries following newly revised projections of natural gas consumption requirements in the 1980s. Such a proposal would help diffuse opposition to the project, particularly in the United States. However, as projections for gas requirements in the 1990s remain unchanged, any proposed reductions will probably be temporary, with the project reverting to its original scale in the next decade.

Finally, the view expressed herein entails recognition that the project, in some form, will go forward, but urges that a final commitment be contingent on the Western allies proceeding with a safety net of alternatives and the kind of unified policy framework mentioned above. This position can be summed up in terms of putting the horse of a collective Western economic policy towards the U.S.S.R. before the cart of long-term commercial commitments with security dimensions.

After a lull in negotiations, the Soviets are now pressing for a firm commitment to Urengoi-Yamburg prior to President Brezhnev's announced visit to Bonn, currently scheduled for November. If the United States and its NATO partners fail to reach a coordinated policy approach in the near term, they may face the bleak prospect that the project, in turn, will shape the policy.

The CHAIRMAN. Thank you very much, gentlemen.

One thing that bothers me, beyond the discussions I've already had with other witnesses, is the fact that everybody seems to agree that the pipeline is critical to the Soviet Union. They've talked about maintaining their own energy self-sufficiency, needing the pipeline in order to develop their own natural gas supplies for internal consumption, as well as increase the supply of natural gas to Eastern Europe and the dependency problem of Western Europe.

It seems to me, viewing the negotiations as an outsider, that all the leverage should be on our side, meaning the West; that it is so vitally important to them that this go through. And then we we are talking about 7½ percent loans when our own people in this country are thrilled with the prime rate getting down to 16½ percent today. Can either one of you—though I'd like both of you to respond—why, when it seems to me the leverage is on our side, are we caving in so and have caved in in the past. The West has not taken advantage of what seems to be incredible leverage to get a better deal. Though, of course, I'm opposed to the whole deal going through?

It seems to me we've given away the store and the Christmas tree and everything else, without any need to at all. And the leverage seems to be on our side.

Dr. Kramish, would you like to start?

Dr. KRAMISH. The leverage was on our side until, perhaps, 4 or 5 years ago. At that time, particularly after the formation of the International Energy Agency in 1974 in response to the 1973 crisis, I happened to have participated in the process and I think we were, essentially, all together—including the French, who were not members of the IEA but cooperated quite substantially——

The CHAIRMAN. Excuse me. But are the French softer than the Germans on this? Is there any possibility of getting the French to withdraw or reduce their participation?

Dr. KRAMISH. We had a difficult time with the transfer of French technology in general. The Iraq situation, the Pakistan situation on nuclear, and now we're faced with the export of some very advanced, sensitive flow control equipment. My perception is that at least in nuclear matters—I can't speak for the Urengoy matter—President Mitterand has been more cooperative with the United States than his predecessors, and I hope we can build on that perception if that is really valid.

U.S. COOPERATIVE PROJECTS ABSOLUTE FAILURES

The problem is that our energy policy domestically went to pieces, and in my view is still in pieces. Our cooperative projects, nuclear and nonnuclear with our allies, were absolute failures and I can very well understand their losing confidence in us. With that loss of confidence we don't have that leverage. We simply don't. We're a nation by ourselves.

The CHAIRMAN. The question has also been raised as to whether or not the Germans really need the Soviet gas, talking about the North Sea, Norwegian, Algerian via pipeline, and the Mediterranean, and so on. From this point of view, do the Germans need the gas?

Dr. KRAMISH. Well, it's not only a perceived need for the gas, which is not held universally in Germany. It's also a short-term need for orders. Manesmann and other Ruhr industries are absolutely delighted to be able to provide full employment in a very difficult period. That factor was predominant, it is just as predominant now and just as important as the perceived need for the gas.

ESTIMATED COST OF PIPELINE

The CHAIRMAN. Mr. Robinson, we have heard estimates ranging from as low as $15 billion to as high as $45 billion for the complete pipeline. Do you have any assessment of what you think the total cost will be?

Mr. ROBINSON. Yes. We looked into that question, and have gone on the following assumption. If you have Western equipment and technology costs for the project that are currently estimated at about $15 billion, most experts I believe concur, that an equivalent ruble infrastructure expenditure of $2 is required to accommodate each $1 of imported equipment and technology. So if you accept the view that Western pipeline orders are in the range of $15 billion, then I think we can safely assume that the total price tag for the Soviet Union would be catapulted to approximately $45 billion.

The CHAIRMAN. So you're at the high end, including everything.

Mr. ROBINSON. As a total cost to the Soviets, yes.

FINANCING ARRANGEMENTS

The CHAIRMAN. Let me go back to what I was talking to Dr. Kramish about. Why, specifically referring to financing terms now, what keeps the Europeans from charging a premium? With currently high interest rates around the world, maybe the leverage is diminished, but still, purely from a financing standpoint, why in the world are we talking about 7½ percent?

Mr. ROBINSON. Well, it is an acknowledged fact that the equipment orders from each of the participating West European countries are supported virtually in full by their respective government export support programs similar to our Eximbank.

The CHAIRMAN. I wish our Eximbank were similar in competition to theirs.

Mr. ROBINSON. Well, yes, we're higher. The Soviets traditionally insist upon what appear to be lower than market interest rates for loans which they attract. These interest costs are traditionally augmented in the provisions of the commercial contracts, that is, the extra financing costs that may be involved are usually built into the price of the Western equipment.

I would suspect that when the financing arrangements are put together, that the Western banks would offer fixed rate financing for the supplier credits involved in the transaction. So in a sense, the interest rate volatility would be absorbed by the government guarantees on the bank loans.

The CHAIRMAN. Let's take the negative case and assume the horse is not out of the barn, and we can stop it. So, if the pipeline deal did not go through, what impact do you think that would have on the current Soviet 5-year plan and on their hard currency earnings?

Mr. ROBINSON. Well, there's no doubt about the fact that the project will make a very substantial contribution to Soviet hard currency earnings that would help them to meet their import requirements of Western equipment and technology needed for the completion of priority economic development projects envisioned in the 15-year development plan that is currently underway. Based on current prices, by 1986 when this project is scheduled to come onstream, Soviet earnings from gas deliveries to the West in total are conservatively estimated to reach a level of about $15 billion, of which the Urengoy-Yamburg component is projected to be about $6 billion. Now, these gas revenues, in the second half of the 1980's assume even greater significance at a time when income from oil exports is expected to level off or even decline.

To put these figures into perspective, in 1980, Soviet deliveries of oil and gas to non-Communist countries accounted for at least 60 percent of their total hard currency export earnings of close to $24 billion. Over and above similar hard currency export earnings projected for this year of about $25 billion, the Soviets are expected to earn between $5 and $5.5 billion from gold and arms sales and $1 billion on their net invisibles account.

On the expenditures side, the Soviets will have to finance a $3.5- to $4-billion estimated hard currency deficit and debt service requirements of another $3.5 billion, yielding a net earnings position in hard currency for this year in excess of $20 billion. So in summary, were the U.S.S.R. denied earnings from Urengoy-Yamburg, it would mean a loss of $6 to perhaps even $8 billion per year in the second part of the 1980's, and thereby restrict their ability to finance scheduled Western imports needed to complete priority development projects.

This loss of hard currency revenue, I think, would also add considerably to the already existing and unexpected cost burdens represented by three consecutive bad grain harvests requiring massive grain imports of as much as 40 million metric tons, at a cost in excess of $5 billion. In addition, you have Afghanistan-connected expenditures and ongoing aid to Poland. So, in sum, this would be a material blow to the Soviet hard currency earnings account.

The CHAIRMAN. Dr. Kramish, do you believe that cancellation would significantly diminish high technology purchases from the West?

Dr. KRAMISH. High technology purchases in the West by the Soviets?

The CHAIRMAN. Yes, by the Soviets.

Dr. KRAMISH. No. I believe that the urge to sell high technology is very strong, frankly, in the west.

The CHAIRMAN. Dr. Robinson has said it would provide them with a lot less hard currency to do so. So are you telling me that they'd still go after their high technology and diminish purchases in other areas so they can get the high technology?

Dr. KRAMISH. The picture is very complicated. I regret having to turn back to the nuclear chapter, but it's very germane to this discussion. The Soviet Union is encouraging the rapid building of nuclear powerplants in the COMECON nations. Each of these plants costs from a half billion to a billion rubles. It is possible that there could be some sort of an exchange relationship whereby the

Soviet Union could, in effect, get—or would demand Western hard currencies for its nuclear plants.

Another important effect is that if this program is successful in the satellite countries, there will be less satellite demand on the Soviet Union's own oil and gas resources. But the satellites will be just as dependent, if not more dependent and tied to the U.S.S.R., because they will need their nuclear fuel. What I am saying is that you have to look at the entire energy picture, before coming to any conclusions on this.

The Chairman. How much effect do you think cancellation would have on the capacity of the Soviets to build up their military?

Dr. KRAMISH. Well, obviously——

The CHAIRMAN. I'm not asking for exact dollar figures, but just a general response. Do you think it would, in some measure, reduce their capacity to build more additional military hardware?

Dr. KRAMISH. Let's take the extreme case, that they can't get the large diameter pipeline from, say, Japan. I'll only make the observation at the moment that such items are being produced in the U.S.S.R. in much smaller amounts because the diameter of the large diameter pipe happens to correspond pretty closely to the diameter of the some Soviet missiles. If they were to build their own line, they would have to, let's say, spin off from the military technology and military plants technology into the civil field.

They have done this in very rare instances. They have never failed to take from the civil technology field and apply it to the military. But that is a gate that is not effective the other way around.

It's interesting that one instance of this is the use of aircraft technology to build their own gas compressors. That has been done because of urgency, and that could be forced upon them again if there were a total embargo, somehow, of equipment. I think that would strain their military potential, yes.

The CHAIRMAN. Well, I certainly think it would. They're already spending 13 to 15 percent of GNP on military, with a strained civilian economy. That's why that aspect of the Yamal pipeline really bothers me, that we give them the opportunity to continue to do that; at the very least to spend that high production, while robbing the private sector, rather than at least attempting to change the direction of that gate.

We may not be successful, but I think we would be. Even in the Soviet Union there is a limit to how much they can rob the private sector—I guess there's no private sector. I should say the civil sector—to provide for the military. And from grain sales to computers to the Kama River truck factory, I just don't understand the rhetoric in this country. We talk about our enemy and then contin ue to build him up. It reminds me of the sales to Japan prior to Pearl Harbor, and we never seem to learn from the past.

In any event, gentlemen, I will have additional questions for you.

I appreciate your willingness to stay. I hope your stomachs are not growling for going too long through the lunch hour.

The committee is adjourned.

[Whereupon, at 1:35 p.m., the hearing was adjourned.]

[Additional material received for the record follows:]

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SENATE SECRETARY
Dec 21 12 03 PM '81

Senator Edwin Garn
Room 5205
Dirksen Senate Office Building
Washington, D.C. 20510

December 24, 1981

Dear Senator:

We greatly appreciate the opportunity to present to you and the Committee views held by German industry in connection with the Yamal pipeline project.

The energy situation in Western Europe, and in the Federal Republic of Germany in particular, has been one of the major concerns of the German Government for decades. The energy supply is so crucial to industrial development and individual well-being that public awareness of the situation is higher there than in a good many other countries. The overall dependence on oil imports (over 90%), imports of uranium (almost 100%) and gas (70%) puts the deal with the Soviet Union into perspective inasmuch as vulnerability to political unrest is a basic condition for planning. It is also felt that the direct political leverage of the Soviet Union is such that a commercial deal of the magnitude of the gas pipeline sale appears small by comparison and could be dealt with relatively easily.

European interdependence in the energy field is a historical fact and a political issue at the same time, as illustrated, for instance, by the attempt to establish a trans-European power grid within the context of the original Roumanian proposal for a European Conference on Security and Cooperation in 1966, or the large Polish coal shipments to West Germany.

The new awareness within the U.S. Government and the U.S. Congress of this situation is much appreciated in Germany and hopefully will help to increase cooperation in the field of energy.

German industry has approached the deal for economic reasons. It shares, however, with the German Government certain concerns about possible political implications. Consequently, the issue was discussed with leaders of U.S. industry at an early stage.

The terms of engineering contracts, deliveries of pipes and equipment, and terms of credit on gas prices are not known to us in detail. Estimates have, however, been widely published. The economic aspects fall within the responsibility of Management of the companies involved which are publicly held corporations responsible to their shareholders. Medium and long-term prospects of maintaining employment in the manufacturing plants are part of their considerations.

The deal does not alter the pattern or magnitude of East-West trade. Trade with East European countries is of considerable interest but comparatively small: DM 8.3 billion in exports in 1980, DM 7.6 billion in imports, amounting to less than 5% of the foreign trade of West Germany; trade with the Soviet Union accounted for approx. 2%.

U.S. trade with Communist countries is substantially higher.

To discuss in the context of this one deal the question whether to trade with the Soviet Union at all, is therefore highly unrealistic.

On the issue of increased dependence, it has been argued that

- a share of 30% of natural gas supplies (6% of total energy supplies) would increase the political leverage of the Soviet Union;
- contracting for additional gas supplies would be unnecessary in the face of a declining gas consumption;
- to focus on this major project would tie up Western resources and divert them from usage in other areas of the world.

Dependence will be mutual. The pipeline is essentially useless to the Soviet Union if she is unable to sell gas to the West. It is believed that one of the major objectives of the Soviet Union is to increase foreign currency earnings in order to finance additional purchases of goods and commodities from Western countries.

Dependence of the West, particularly Germany, is limited. No credible scenario has been presented for attempts of political extortion by cutting off gas supplies. Historical examples, with the exception of the Berlin Blockade of 1947, occurred within the Eastern Block. A shortage of supplies of Soviet gas in certain regions or segments of industry is unlikely to exert pressure on the German Government. Not only is there a wide consensus on energy policy between the Government and industrial or private consumers, but the long-term energy policies and structure of the political system in Germany is not likely to allow for sudden and relevant pressure in case of a short-term disruption of gas supplies. It is particularly unlikely that private citizens would exert pressure on the German Government. Natural gas is used mostly for cooking, to a lesser extent for heating purposes, and always in conjunction with electricity and other sources of energy. Shortages could be absorbed by less sensitive areas and compensated for by market forces, only. Usage is as follows:

Gas Consumption 1980 (in billion cubic meters)

Industry:	Iron	12.76		
	Chemical	10.44		
	Glass/Ceramic	4.01		
	Other	11.83		
	Total:		39.04	
Public Utilities			17.28	
Household, Trade and Commerce			15.15	
Other			4.00	
Export			3.29	
TOTAL:				78.76

In 1980, electricity generated by gas amounted to only 17.1%, and the percentage is declining (12.9% over 1979). Electricity is primarily generated from coal (57%), nuclear fuel (14.3%), oil (5.5%) and hydro power (4.7%). European utility companies are operating an elaborate grid system connecting almost all of Western Europe, allowing for tremendous flexibility. There are ample provisions for possible deficiencies caused by technical failure or shortages in one area or another. It would create no insurmountable problems to slightly restructure the system in the event of a Soviet cut-off. Additional supplies of natural gas from European or North African fields could be fed into the European system. The existence of the Soviet pipeline should not adversely affect any projects contemplated in this area. The European energy industry looks to these resources as a reserve for future generations.

Future construction of power plants will not focus on gas (a 2.5% increase in capacity is expected by 1986) but mainly on increases in nuclear energy (64.6%) and coal (26.7%). The decrease in the relative proportion of gas consumption is an important argument to also see future supplies by the Soviet Union in a less dramatic perspective.

It is a well documented fact that the major energy companies of the Western world have accumulated record profits and are financially and technically well equipped to enhance exploration and production from fossile and other energy sources. To our knowledge, there are no projects which have not been envisaged or executed because of a lack of funding. Obstacles, if any, to the development of additional sources of energy are political by nature or caused by a distortion of market forces alone. The industrial goods sold to the Soviet Union by U.S., German and other companies in connection with the pipeline project stem for the most part from industries reporting under-utilization of capacities.

Yours very truly,

Dr. Lothar Griessbach
Director